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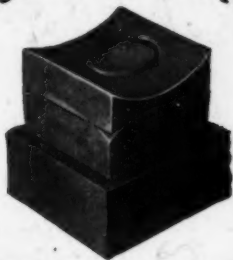
Railway Age

SECOND HALF OF 1924—No. 4

NEW YORK—JULY 26, 1924—CHICAGO

SIXTY-NINTH YEAR

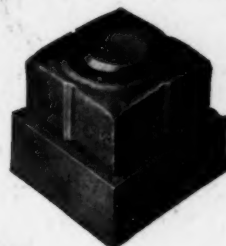
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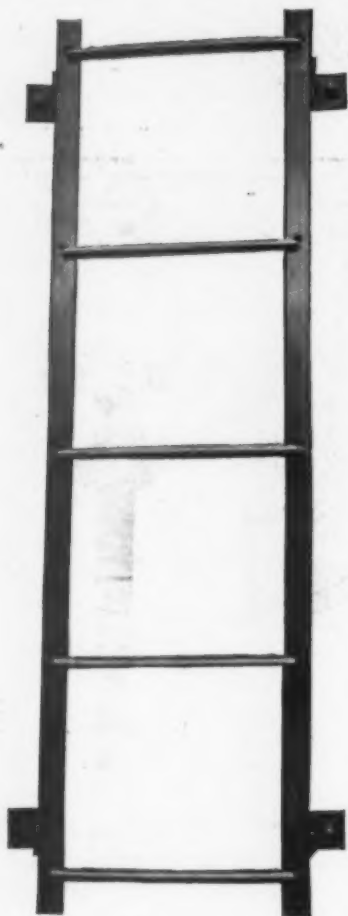
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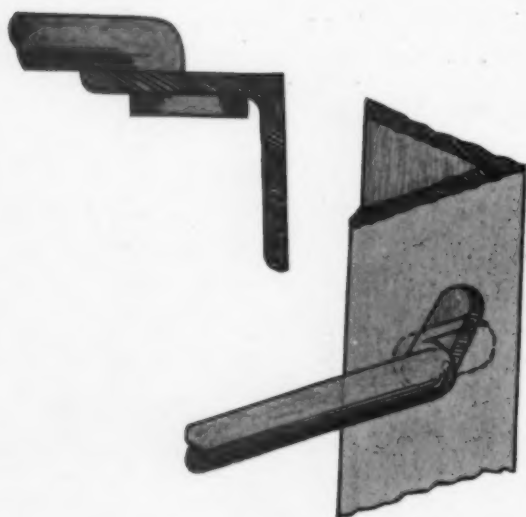
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EDITORIAL

Railway Age

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Many operating officers have felt that the continued enforcement of Rule 99, requiring full flagging protection in automatic block signal territory, is as much

Discarding the Flagging Rule

a menace as a safeguard. An engineman stopped in automatic territory may consider the stop as of only short duration and not "blow out" his flagman, thus relying on the automatic signals, or in case the flagman is sent out he depends on the automatic signals and the alertness of the engineman of a following train to observe their indications. As a result, in many cases, as explained frequently in accident reports, "the flagman was not back as far as the time available would allow." No doubt this division of responsibility between the engineman and the flagman has been the cause of several serious accidents, yet operating officers hesitate to abandon the long established practice of flagging, although in order to make schedule time short flagging is countenanced or at least not criticized severely except in the case of an accident. One railway officer has come out four-square for the elimination of Rule 99 in automatic signal territory and in an article elsewhere in this issue points out the benefits to be derived by placing the responsibility entirely on the engineman for the observance of automatic signal indications, the flagman being responsible only for the tail lights and for the placing of fuses and torpedoes near the rear of the train at every stop, but being prepared to catch the train at any time that the engineman is ready to move on. It is true that much can be said on both sides of the question of flagging in automatic territory, but the fact remains that a division of responsibility is the basis of the explanations for many accidents. The problem, therefore, deserves the best thought of operating officers.

The placing of concrete in track structures, like many other construction operations, is often conducted under adverse

Do Not Overlook the Element of Quality

circumstances. The presence of the track restricts the working space and the requirement that interference with traffic be avoided places serious limitations on the methods of carrying on the work. To meet these conditions construction engineers and contractors have evinced no little ingenuity in the development of special equipment and methods for the mixing and placing of concrete in retaining walls, bridges, street subways, etc. In some cases this has taken the form of complete plants mounted on railway cars. In others it embodies central plants from which concrete is delivered at considerable distances by the use of various forms of distributing equipment. Many of these plants involve the use of chutes, either in short sections or in long lengths extending from the tops of tall towers. But whatever the system, the conditions imposed are such that the consideration uppermost in the minds of the construction engineer and the contractor's superintendent is the expeditious delivery of the concrete in the face of serious obstacles. In view of this, it is not surprising that they sometimes overlook the importance of the consistency of the concrete in its relation to the quality of the product, so that excessively wet mixtures are a common result and the efforts made to secure concrete of a high

strength through the purchase of aggregates of a high quality and the use of rich mixtures are not fully realized. Experience has shown, however, that this sacrifice in the strength of the concrete is in large measure unnecessary. Mixtures having a sufficiently dry consistency to insure high strength can be so proportioned as to require little sacrifice of workability or permit the use of chutes which are without question one of the most valuable adjuncts to modern concreting equipment. It is true that such results are not obtained without considerable study and painstaking effort in determining the most suitable proportions for the concrete, but it is well to remember that the use of concrete in railway structures is justified primarily on the theory that it constitutes a permanent form of construction and that the mixing of concrete must embody methods which will insure that this permanence is obtained.

Relatively few railroads have a highly developed organization for the purpose of manufacturing electric power. Regard-

Power at Cost

less of this fact, the use of machinery driven by electric power and the use of electric light have rapidly increased the electric power consumption of all roads. The natural result is that there is an ever increasing amount of power purchased each year from power companies. In turn there has risen a need for developing a form of power contract best suited to the requirements of the railroad purchaser. Such a contract is suggested in an article published elsewhere in this issue under the title, "Contracting for Electric Power Service." Features of the suggested plan for purchasing power may be impracticable as it has the elements of a cost plus contract which might give the power producer such a sense of security that he would not exert his best effort to produce power at the lowest possible cost. On the other hand, with exigencies properly allowed for, the suggested form of contract would make it possible for the producer to keep abreast of the times in the science of power generation. The result of this would be that dependability of the power supply would be assured; excess profits to the producer would be avoided and the cost to the railroad kept at a minimum. In view of these possible savings and improvements, the plan is worthy of consideration and the author will welcome suggestions and criticisms.

The railroads have been engaged for some time in an endeavor to reduce operation costs with the result that many

More Study of Hidden Costs

studies have been inaugurated of subjects hitherto not usually given much attention. One subject which lends itself readily to profitable research is that relating to the amount of material purchased and on hand. Presumably all roads are aware of the amount they spend annually for material and strive to keep the expenditures down to a minimum consistent with the maintenance and new construction work which must be done during the year. Actually the amount of material purchased annually fluctuates widely and with the exception of

periods of extreme stringency, it is doubtful if the so-called minimum is ever anything more than a hypothetical one so far as material expenditures are concerned. In relation to this it is interesting to observe that many operating, mechanical, maintenance and other departmental officers never consider that the railroad has spent any money for material until the material is charged out to operating expenses; that is, until their particular departments have actually been charged for it. The investment feature seems to weigh but little with them. A sidelight on this is the not uncommon practice of sending material back to the storehouse over the end of the month, thus getting credit for it and cutting the apparent cost of the department in question. That department thereby operates at a minimum cost but it has not helped the railroad as a whole to reduce its costs to a minimum, which, after all, is the true objective. The investment in material lying idle or in stock represents a hidden cost which many roads could study to their ultimate profit.

It has been said that a good job of fuel conservation is a good job of operation, and as has already been stated in

A Department Bigger Than Its Job

these columns, the fuel element of operating expense probably does reflect the efficiency of operation and maintenance more truly than any other single item. There is, however, always danger in accepting such a generalization, that it will be taken literally and its implications carried too far. As a slogan of the fuel department it may result in building up another self-conscious department in which the natural tendency will be to place its own immediate objective above the welfare of the property as a whole. The fuel department would then become merely an addition to the number of departments between which there are already too many causes of conflict and would be worse than useless. The function of this department is to co-ordinate the work of other departments with respect to the provision and economical use of fuel, and for it to place even this tremendously important object above the welfare of the road as a whole will destroy its influence with the other departments in the accomplishment of its own task. To be effective as co-ordinators, the officers of the fuel department must first be railroad men and then coal savers. They must be bigger than their own jobs. Where the best results have been obtained, this has been the case.

The Long Island Railroad, operating less than 400 miles of road, employs about 800 men to watch highway crossings;

Mouth Whistles for Crossing Tenders

probably the road with the greatest "density" in this feature of its expenses to be found in the United States; more than two men per mile of road. It reports an annual expenditure for crossing protection about equal to that of the Erie, operating 2,040 miles of road, and the Baltimore & Ohio, operating 5,187 miles. Long Island experience being thus presumably instructive it will be of interest to note that mouth whistles have been put into the hands of each of these 800 watchmen, to be used to notify automobiles (and all vehicles and pedestrians) to stop. The whistles will not be used to give proceed signals. This innovation is not wholly an experiment as the road has 24 crossings where for a long time extra "traffic men" have been employed (using whistles) in addition to the gatemen, to guide street movements the same

as is done by city policemen. The Long Island has altogether over 300 *protected* crossings, or three-fourths as many crossings per mile of line as most railroads have of all classes, both protected and unprotected. Crossings having gates number 257; and at seven places the gateman rings an electric bell at another crossing nearby. Forty-nine crossings have automatic audible signals and 14 have automatic signals (flashlight) both visual and audible.

The article on another page describes the replacement of several old bridges on the Baltimore & Ohio which embody

A Mile Stone in Bridge Design

an interesting type of construction, the Bollman truss. Developed by Wendell Bollman at a time (1840) when bridge builders were endeavoring to place bridge design on a rational basis, it played a definite part in the development of modern truss systems. It represents the simplest possible type of multiple panel truss framing for, as may be seen in the illustration, the load at each panel point is carried directly to the ends of the span by two diagonals entirely independent of the framing in any other portion of the bridge. It therefore represented a most natural step in the efforts to develop framed structures that could be readily analyzed at a time when the analysis of such structures was but imperfectly understood. The reason that this form of truss has been only rarely encountered in old bridges is that it was soon superseded by the Fink truss invented by Albert Fink, later a prominent railway officer, who was at one time Bollman's assistant. While Bollman's work in bridge design played a less important part than that of his contemporary, Squire Whipple, the soundness of his designs and the excellence of the workmanship carried out under his direction, are attested by the fact that a number of his bridges performed useful service as railway structures for four score years.

During the past few months—perhaps longer—a certain railroad has been making marked improvements in its equip-

Facts vs. Figures

ment and is undertaking other important additions and betterments. This work is being done, however, it might almost be said, surreptitiously. Passengers notice that more and more of the company's locomotives have taken on a new appearance, standing out in splendid contrast to those which have not been recently overhauled under the company's policy of improving not only the mechanical performance but also the appearance of its power. A larger percentage of the company's cars appear freshly painted. What is happening on this road?—the passengers ask themselves; and as yet the question has not been satisfactorily answered. When this company has anything to say to its patrons, as it occasionally does on posters or by other means, it generally restricts itself to giving facts and figures, particularly figures, about railways in general—what the average return is, how the railway spends its dollar and so on. This information is important and it should be put before the public at every opportunity, but is not the railroad which restricts itself to such general appeals overlooking a large part of its opportunity in public relations work? The attention of the public does not have to be drawn by strategy to improvements and developments on a railroad which it uses almost daily. Instead, the interest exists already and needs only something to feed upon. Anything which the company sees fit to tell its patrons about local improvements, therefore, stands ready to be

absorbed in all its details by the public in that locality. The public, moreover, appreciates being told the things it wants to know and insofar as a railroad can satisfy this healthy curiosity, just so far will its popularity be increased. Furthermore, the railroad which makes friends and supporters for itself at the same time makes friends and supporters for all railroads and puts the public in a frame of mind where figures as to how much the railways earn and how their expenditures are divided present a genuine appeal. The interest of most people is more easily aroused by the appearance and workings of a machine than by the book-keeping done in connection with it.

No problem confronting the railways today threatens to involve the expenditure of more money than the demand for

Is a Change in Attitude Desirable?

the separation of grades with streets and highways. While it is evident to any fair-minded person that it is impractical to finance the separation of any considerable number of crossings, it is equally apparent that more work of this character must be done in the future, either voluntarily by agreement with public authorities or as a result of legislation, than has been done in the past. With the development of the automobile and the resulting tremendous increase in travel on the highways the grade crossing problem has come to the front. While the increase in the number of accidents at grade crossings has not been out of line with the increase elsewhere on the highways, it cannot be denied that every grade crossing of an important highway over a busy railway constitutes a point of danger. The only positive way of eliminating this hazard is the separation of these grades. However, the cost of this would be so great as to render any comprehensive program impracticable. Because of this fact the railways are naturally opposing grade crossing legislation and are assuming a defensive attitude towards all agitation in this direction. It is questionable whether this attitude on their part is not bringing on them an undue and unnecessary amount of criticism which they can avoid by changing their attitude to one of co-operation. There is an increasing realization on the part of the public that the elimination of the grade crossing involves a dual responsibility between the railway and the public. Legislation in several states and court decisions in others have recognized this by providing for a division of expense. Even though this division would place a large burden on the roads if all crossings were to be eliminated, an investigation will show that most municipalities are little, if any, better prepared to spend money for such improvements than the roads. Therefore, in many cases, the roads will have little to lose from the standpoint of actual expenditures by co-operating with the municipalities in the study of grade separation problems, in the development of programs and in the preparation of estimates of the cost of eliminating these crossings at some future date. With these figures before them many municipalities will face the same financial problem as the railways and will lose their enthusiasm for the immediate expenditure of the sums necessary to separate these grades. They will then show a greater inclination to co-operate in the inauguration and enforcement of those measures which will reduce the hazard by insuring more careful driving. By co-operating with communities in the study of these programs, the roads will stand before the public as willing to assist rather than as arbitrarily opposing such improvements. Such an attitude will do much to remove hostile public opinion and place the responsibility for grade crossing elimination where it rightly belongs—on the public and the railways jointly.

Freight Rates and Grain Prices

THE WORKING of economic laws often creates conditions which demagogues use to foment discontent and promote their own interests, but the working of the same laws often suddenly creates conditions which are embarrassing and even ruinous to the demagogues. How it often throws them into confusion is illustrated by important developments affecting the freight rates on grain and their market prices which have occurred recently.

For more than three years radical politicians have been telling western farmers that high freight rates were the main cause of their financial troubles. They introduced in the last Congress numerous bills providing for the arbitrary reduction of freight rates on farm products. Meantime, there was pending before the Interstate Commerce Commission a proceeding for reductions of the freight rates on grain which was brought by the public utility commissions of some western states. The Interstate Commerce Commission made public its final decision in this case last week. It refused to grant the reductions sought. It held that the present rates upon grain are not unreasonable; that the western group of roads have not been and are not now earning a fair return; and that a reduction of rates, by impairing railway service, probably would do the farmers more harm than good.

This decision could have been used effectively by the radical politicians to intensify the discontent of western farmers except for one very important development which was occurring while the commission was reaching its decision in this case. This was an advance in the prices of grain, and especially of wheat and corn. The contrast between what the farmers would have gained directly by the reduction of rates sought, and what they are gaining by the advance in the prices of grain, is so extremely great that the effect upon agrarian sentiment of the commission's refusal to reduce the rates should be completely submerged in the effect produced upon that sentiment by the advance in prices.

It has been repeatedly pointed out to the farmer by those who have opposed reductions of rates that their troubles have been due only in a small measure to freight rates and almost entirely to the relatively low prices of their products caused by the working of the law of supply and demand. The advance in prices that has occurred has come at just the right time to show how true this is. The reduction in grain rates sought was about 10 per cent. It would have amounted to about \$30,000,000 annually for the railways of the country as a whole and to \$17,500,000 to \$20,000,000 for the western roads. The latest available statistics indicate that the total reduction of rates on wheat would have been about \$9,300,000 annually and on corn, \$5,800,000. Between June 2 and July 17 the price of cash wheat on the Chicago market increased 23 cents a bushel. On a crop of 700,000,000 bushels this would amount to \$161,000,000, or to 18 times as much as the reduction in wheat rates sought. Between the same dates the price of cash corn increased 38 cents a bushel. On a crop of 3,000,000,000 bushels this would amount to \$1,140,000,000, or 200 times as much as the proposed reduction in the rates on corn. On the basis of these increases in prices the increase in the value of the year's wheat and corn crops is almost 40 times as great as the reductions in rates that were sought on all grains and grain products.

The difference between the value to individual farmers of the reduction of rates that the commission refused and the increase in prices that actually occurred between the first of June and the middle of July may be best illustrated by statistics for average farms in certain states. There are shipped from the average Kansas farm about 593 bushels of wheat and 50 bushels of corn annually. The reduction in rates sought on this much wheat and corn would have

amounted, if they moved from a point in central Kansas to Kansas City, to about \$7.50. The amount of wheat produced upon the average Kansas farm is 900 bushels and the amount of corn 360 bushels. The six weeks' increase in grain prices has increased the value of the wheat and corn grown upon an average Kansas farm by \$548.50, or about 73 times as much as the reduction of rates sought would have amounted to.

On the wheat and corn grown on the average farm in Minnesota and shipped to Minneapolis the reduction of rates sought would have amounted to about \$3.50 annually. The average production of wheat per farm in that state is about 300 bushels, and of corn about 441 bushels. The six weeks' advance in the prices of these products amounts for the wheat and corn grown on the average Minnesota farm to \$305.00, or to 87 times as much as the reduction of rates sought.

North Dakota is distinctly a wheat growing state; its production of corn is very small. The reduction in the rates upon wheat sought would have amounted for the average North Dakota farm to about \$16.00 a year. The amount of wheat grown annually upon the average North Dakota farm is 1,650 bushels, and the increase of 23 cents a bushel has increased the value of this amount of wheat \$380.00. This is 23 times as great as the reduction of rates sought.

The principal argument advanced for reductions of freight rates on grain was that the freight rates had increased much more in proportion than the prices of grain. The average advance in grain rates over pre-war years now stands at about 45 per cent. If the Interstate Commerce Commission in this case had accepted the argument of those who contended that freight rates should be based upon prices the advances in grain prices that have occurred within recent weeks would have completely turned the tables upon them. When they presented their case to the commission the freight rates on grain, figured on a pre-war basis, were relatively higher than grain prices, but at the time the commission rendered its decision the prices of both wheat and corn had become relatively higher than the freight rates upon them. Therefore, on the price theory of rate-making the rates upon both wheat and corn should have been advanced, not reduced. What would the farmers have said to those who were trying to save them by getting reductions of rates if they had succeeded in getting established the principle that rates should be based on prices just at the time when the prevailing prices would have justified an advance in the rates?

Since the reduction of freight rates has been advocated as a panacea for the farmers' ills, it is an interesting and significant fact that the recent advances in the prices of wheat and corn are worth many times as much to the farmer as would have been the complete abolition of the freight rates upon these products. The total freight rates paid upon wheat in 1923, according to the statistics of the Interstate Commerce Commission, amounted to \$93,000,000, while on the basis of the six weeks' advance of wheat prices mentioned, the increase in the value of the year's wheat crop has been about \$161,000,000, or 74 per cent more than the total freight rates upon it. The total freight rates upon corn in 1923 were \$58,000,000, while the six weeks' increase in the prices of corn as applied to a year's crop amounted to \$1,140,000,000, or almost 20 times as much as the total freight charges paid on corn in 1923.

The facts here given constitute a striking vindication of the decision of the Interstate Commerce Commission against a reduction of the rates on grain and an equally remarkable refutation of the theory that relief for the farmer could not be secured without a reduction of freight rates. What the farmer has needed and is getting is a re-adjustment of prices that will increase his ability to buy all the things he requires and a reduction of freight rates on farm products alone would have ruined many railway companies, while doing the farmer little or no good. The developments of recent weeks should

have a salutary effect on the sentiment among western farmers and a bad effect on the prospects of public men who have been relying on the farmers' ill fortune to cause him to vote for a radical political program.

Some Improvements in Earnings

AN INTERESTING FACT about the developments in the railway field thus far this year is that while the net return earned by the railways as a whole has declined there have been improvements in the financial results gained by the groups of railways which have most needed them.

Three groups of roads in 1923 earned less than 4 per cent net operating income on their property investment. These were the New England lines, which earned 2.3 per cent; the northwestern group, 3.42 per cent, and the southwestern group, 3.67 per cent. All these three groups of roads earned more net operating income in the first five months of 1924 than in the corresponding months of 1923, and they were the only groups that did.

The most marked improvement was that made by the New England roads. In the first five months of 1923 their net operating income was only \$1,916,000 while in the corresponding months of 1924 it was \$13,100,000, a gain of almost \$11,200,000. Of this gain in net the New Haven got \$5,100,000 and the Boston & Maine almost \$4,400,000. The New England lines suffered a reduction of their gross earnings, but they reduced their operating expenses almost \$11,400,000, of which \$8,300,000 was in the cost of conducting transportation. They also reduced their equipment rentals about \$5,000,000. Their net return in the first four months of the year was at the annual rate of 4.73 per cent. The New England lines are not "out of the woods," but they have been making real progress in the right direction.

The railways of the northwestern group had a reduction of \$25,000,000 in their earnings in the first five months of the year. There was an increase in their expenditures for maintenance of way, but they reduced their transportation expenses \$15,300,000 and their maintenance of equipment expenses almost \$11,000,000. The net operating income of the Great Northern increased \$1,400,000 and that of the Northern Pacific \$1,300,000. The net return on property investment of the northwestern group in the first four months of the year was, however, at the annual rate, of only 2.2 per cent. Although they made a slight improvement in net they are still doing badly, but they always earn much the larger part of their net in the latter half of the year.

The southwestern and Pocahontas groups are the only groups of the seven into which the Interstate Commerce Commission divides the railways of the country which had larger total earnings in the first five months of 1924 than in 1923. The total earnings of the southwestern group increased \$4,300,000 and their net operating income \$2,300,000. In the first four months of the year, however, their net operating income was only at the annual rate of 3.8 per cent. The Missouri Pacific got the lion's share of the increase in net, its net operating income being \$2,540,000 more than in the previous year. The Texas & Pacific and the Gulf Coast Lines also enjoyed increases, the net of the former increasing over \$900,000 and that of the latter about \$800,000.

The railways of the eastern district enjoyed relatively the largest increase of traffic in 1923, while those of the southern district were second in this respect, and those of the western district third. The tendency has been completely reversed this year, the western lines having had the smallest reduction of traffic, the southern lines the second smallest and the eastern lines the largest. The result has been less difference in the percentages of return earned in the different districts than last year.

An Example of the Spirit of Co-operation

ONE OF THE MOST forward-looking agreements negotiated between a railroad and its own shop employees, following the shop crafts' strike of 1922, is that of the Union Pacific System. Apparently at the very outset the plan contemplated the development of co-operative action beyond the spheres of wage agreements, the formal establishment of working conditions and the settlement of grievances. This is evident from the broad provision in the original agreement that each member of the Shop Employees' Association—Union Pacific System, was to feel it not only his duty, but his privilege to call the attention of his local committee to "any question or factor which, as the individual views the situation, may be so handled as to result in the mutual advantage of employees and company." As set forth in an article elsewhere in this issue, the carrying out of this and other provisions of the agreement applying more strictly to working conditions, has led to the development of regular shop meetings, the conduct of which early this year was established on a uniform basis at all shops on the system, now formally known as Shop Councils.

The rules for the functioning of these Shop Councils indicate that they do not differ essentially from the co-operative arrangement developed on the Baltimore & Ohio by agreement between the company and the so-called standard unions, and there is no reason to doubt that in both cases the schemes are functioning with satisfaction and benefit both to the railroad companies and to their shop employees. If this be true, what is the fundamental condition that makes them both successful? It is evident at the outset that it cannot be the form of the organization or the specific terms of the agreement, because the two forms of employee organization are antagonistic and if one in itself contains exclusively the fundamentals necessary for success, the other must inevitably lead to failure.

Co-operation, by its very definition, draws its existence from a spirit of mutual good will. Good will, in turn, cannot exist in an atmosphere of distrust. The success of any agreement the purpose of which is to effect co-operative action depends entirely on the development and maintenance of a relationship of mutual trust and confidence.

There is no form of agreement by which mutual trust and confidence can be created or maintained. Formal agreements are merely the machinery by which the purposes of the parties negotiating them are to be carried out. If the purpose of the two parties is not identical, then the agreement becomes a mere technical code, the provisions of which are to be literally interpreted for the selfish advantage of the party most skilled in argument or wielding the balance of power.

Under such conditions no doubt the more completely it is attempted to cover every contingency, the more opportunities there will arise for sharp practice and the development of distrust and hostility. Agreements are useful machines, but without the lubrication of mutual confidence and good will, they soon destroy their own effectiveness.

The only conclusion which can be drawn by a comparison of the two plans of co-operation representing such widely different forms of employee organization, exemplified on the one hand by that of the Baltimore & Ohio and on the other by that of the Union Pacific, is that the continuance of their success depends upon the honesty of purpose with which both parties in each case continue to deal with each other. This cannot be maintained by force; it springs from the motives of the individuals who make up the parties to the agreements and can only be maintained as long as they will that it be maintained.

Books and Special Articles of Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Rules and Regulations Governing the Administration of the Federal Water Power Act. 2d Revised issue, by the U. S. Federal Power Commission. Federal Water Power act, with amendment, p. 55-69. 69 p. Pub. by Govt. Print. Off., Washington, 10 cents.

Russian Debts and Russian Reconstruction, by Leo Pasvolksy and Harold G. Moulton. "The relation of railroad construction both to Russia's foreign credit and to her budgetary deficits is especially interesting." p. 49. A study by the Institute of Economics. 247 p. Pub. by McGraw-Hill Book Co., Inc., New York City. \$2.50.

The Trend of Economics, edited by Rexford G. Tugwell. Essays by twelve modern economists. For special topics see Index under titles "Private Ownership," "Rates," etc. 556 p. Pub. by Knopf, New York. \$5.00.

Periodical Articles

Cartage Practice at Intra-Terminal and Off-Track Freight Stations, by J. F. Murphy. Description of freight handling, principally at St. Louis terminals. World Ports, July, 1924, p. 81-94, Discussion, 94-120.

Colorado & Southern Earnings Double. Brief historical and financial survey of this road. United States Investor, July 19, 1924, p. 1849-1855.

The Fuel Resources of Canada and Their Utilization for the Production of Power and Other Purposes, by B. F. Haanel. Production of fuels, consumption of fuels by railroads and other industries, analyses, etc. Engineering Journal [Canada], July, 1924, p. 361-382.

Law Affects Rail Rate Claims, by Harry S. Elkins. Amendments to Section 16, Interstate Commerce Act, regarding refund claims. Constructor, July, 1924, p. 26.

Markham Discusses Railroad Valuation. President Markham's address before Mid-west Regional Advisory Board at Chicago. Trade & Transportation Bulletin, July, 1924, p. 1-2, 8-9.

Railway Electrification. Abstracts of papers on economic, financial, and technical aspects of "Power for Rail Transport" at World Transport Conference, Wembley, Eng., July 9, 1924. Modern Transport, July 12, 1924, p. 5-7.

Romances of Industry—Beef, by F. Edson White. Development of refrigerator cars in connection with meat trade, p. 20-22. American Industries, July, 1924, p. 19-23.

When Does a Public Utility Plant Wear Out? Some Expert Views on the Important Matter of Depreciation. Barron's, July 7, 1924, p. 12.

New Books

Equipment Obligations, by Kenneth Duncan, sometime fellow in economics in the University of Michigan. With an introduction by I. L. Sharfman, professor of economics in the University of Michigan. Size 5 in. by 8 in. Pages, xxviii and 358. Bound in cloth. Published by D. Appleton & Co., New York.

The railway man who reads this book will find that it is written more from the viewpoint of the financial man than from that of the railroad man. The book has its greatest value in that it is the first book on this subject. There have

been many articles written about equipment obligations and there has been much discussion of their value and use. Dr. Duncan has gathered within the pages of his book information that could only be obtained by reference to many issues of financial and other publications or to court decisions. He has co-ordinated the material, supplemented it by careful expression of his own and other thought and opinion and finally prepared a rather readable discussion of what otherwise would possibly be an involved and dull subject. His method of treatment is best explained by notation of the subjects covered, which are, namely: History and growth of equipment obligations; the character of such obligations; government co-operation with relation to the financing of the standard equipment allocated to the railroads by the United States Railroad Administration; obligations at common law; statutory regulation; investment qualities, and accounting with reference to the equipment obligations.

The book should have had another chapter. This should have contained a discussion of equipment obligations from the viewpoint of the railway executive and operating officer. Every railway man who has considered this subject at all does so with certain basic ideas that might not occur to one outside the railway field. Equipment trust financing is done with such comparative facility that there has been a tendency for the railways to buy equipment and to neglect the purchase of facilities needed to take care of this equipment properly and to permit its most advantageous use in railway operations. There has been much said about this feature of railway financing in the *Railway Age* and other journals. Dr. Duncan, however, omits discussion of it. He apparently does so because in his otherwise excellent work he has failed to secure the views of railway officers on his subject.

There are certain other features of the book that indicate the same situation. On one page he makes this statement: "The financing of equipment is, to be sure a relatively small, albeit a very important, part of railroad finance in general." In 1922, the railroads expended for additions and betterments a sum of \$440,000,000 excluding retirements. Of this sum \$245,000,000 was for equipment and but \$195,000,000 for roadway and structures. In 1923 the capital expenditure totaled \$1,075,000,000 of which \$690,000,000 was for equipment and \$385,000,000 for roadway and structures. The tendency of these two years has been the tendency of several recent years. Under the conditions, is it not somewhat far-fetched to term the financing of equipment "a relatively small part" of railroad finance? This evidences again that Dr. Duncan has passed over the most important factor in connection with equipment obligations as they are regarded by railway men.

If it is a fact that the ease of financing through equipment trusts has led railroads to buy equipment but not the facilities needed with such equipment, this is a situation that should receive attention in a book on equipment obligations. Discussion of it should include treatment of remedies, if there are any. One remedy that has been suggested is the application of equipment trust financing to terminal facilities. Dr. Duncan apparently has not heard of this innovation in railway financing. If he has heard of it, he does not consider it important. He says "There are, moreover, certain inherent difficulties that appear to prevent the extensive application of the equipment trust principle outside the field of railroad and marine equipment finance, and that makes it highly improbable that equipment obligations will become of importance in financing the acquisition of other kinds of personality by other kinds of industrial companies." Of course, it may properly be said the methods of financing terminal improvements so far suggested may not be akin to equipment obligations in the strict construction of that term. Nevertheless, we are going to hear more of such financing and there are many authorities who believe that the idea embodied in it has great promise.

Letters to the Editor

Enginemen, Flagmen and Trainmasters

SAN FRANCISCO, Calif.

TO THE EDITOR:

Your editorial of June 28 concerning the need for accurate whistle signals and more constant supervision of employees by trainmasters deals with two very important needs. While these subjects may be looked upon as slightly shelf worn, and while about all that can be said concerning them has been said many times in the past, the facts should be iterated and reiterated, in season and out of season; by no other course can there be any hope of ever attaining permanent and satisfactory observance and service. Men soon drift back into their old slovenly habits not only with the whistle signals, but also those which are given by hand or lamp. Unless checked up constantly carelessness in the observance of rules grows like weeds in a damp August.

Hand, lamp and steam whistle signals speak a language as certainly as words spoken by the tongue and are likewise liable to be misunderstood. When an engineman sounds the public crossing whistle he is talking in a warning voice to persons approaching the crossing, telling them to look out, a train is approaching. When he whistles for a station, should he sound one short, instead of one long blast, he is not announcing to passengers and baggage men, express messengers, mail clerks and trainmen that a station is being approached, "get ready," but is calling for the application of hand-brakes instead; and so throughout the category of signaling.

The language of audible signaling and hand signaling is not acted upon as it is expressed, by motion or sound, but is respected as it is thought the person giving the signals wishes to be understood. If men were always to obey signals exactly as they are given, there would at times be some queer and possibly dangerous situations.

Not enough care is exercised in the selection of trainmasters. Or is it that good material is lacking? Perhaps the salaries are not generous enough to induce talented and well fitted men to seek these places. Trainmasters must measure up to at least four important standards: Train experience; Activity; Endurance; and Good Health. Unless a trainmaster has had experience in train service he is not always taken seriously by trainmen. Unless he is quick to detect shortcomings and violations of important rules and can analyze their far-reaching possibilities at the moment, he may pass over his division any number of times without discovering wherein his organization is falling short. He will overlook conditions which if allowed to continue may result in collisions or lesser troubles. He must be able physically to lose a night's rest now and then without having to tie up the next day for sleep. He should be between 30 and 45 years of age and should have a fair education.

When the Omniscient Master said to his disciples, "What I say unto you I say unto all, watch," He must have known that at some time in the course of human events there would be trainmasters; for no other officer is required to be so constantly on the alert for infractions of rules and all manner of carelessness.

Too many officers who are charged with the duty of observing how rules are obeyed by train service employees seem to think that once an employee is "lined up" he will cause no further trouble, and need not be watched thereafter; but nothing could be more fatuous. If men are left to interpret and observe rules as they deem proper, the sad fact is that a

large proportion will be found soon to be following the line of least resistance; that is, they will merely do enough to get by, trusting to luck not to get caught.

Only two illustrations need be cited—and these two can be found anywhere; the public crossing whistle, and Rule 99. If it were well known that for the next three months no further effort would be made to secure correct whistling or safe flagging, enginemen would soon be whistling in a more senseless and haphazard manner than at present (if such a thing could be.) If flagmen felt that their work would not be checked for the same period (to see whether they always showed up at the rear of passenger trains at every momentary stop; or at points where they change, the incoming flagman remained back of his train until actually relieved by the outgoing man) I am wondering what a faithful historian would have to record if he could see the actual situation at the end of that time.

Passenger flagmen should be required to protect their trains within yard limits, the same as elsewhere, with only very carefully guarded exceptions. At points where trains stop for meals, the temptation for a flagman to leave the rear of his train unprotected while he gets a lunch is very great; but such looseness should not be permitted at any place, at any time. These men are paid well to render the one service—flagging—and should be held to strict observance of this requirement. The wants or comfort of the inner man should be attended to elsewhere. The flagman's duty is a straight business proposition. He is bound to guard the passengers as long as there are any passengers in the cars to guard. More than that; if he is fit to be called a competent railroader he must carefully protect from following trains every square inch of varnish on the rear car of his train.

HARRY W. FORMAN.

A Classified Knowledge of Enginehouse Expense

CHICAGO.

TO THE EDITOR:

Referring to your article, "The Locomotive Day—in Dollars and Cents" published on page 1769 of the June 21 issue of the *Railway Age*:

In this case we have an administration operating 210 locomotives and involving a maintenance expense of approximately \$170,000 per month or \$2,040,000 per year, with an annual service rendered of about 5,000,000 locomotive miles. This assignment does not equal, but is approximately equivalent to two normal double track main line divisions. Under most systems such territory is supervised by two master mechanics. These men, generally speaking, maintain their own power, except for extreme cases of the heaviest class of work. The first reaction of the superintendent of motive power exhibited in this case was one of the usual caution of such a man when approached by a comparative stranger, and particularly from a statistical point of view. The superintendent of motive power must, of necessity, be a practical mechanic or road man, as the scope of the operation is not such as could best be served by a purely technical man, or even by one having practical experience but specializing unduly in theoretical considerations. The field on the small property employed as an example, is entirely too restricted to justify a man in charge of locomotive work very far removed from the pulse of his road, roundhouse and shop operation in order to obtain the closest harmony and most practical results. When a vast property is considered, and the care of thousands of locomotives and cars is centered under one mechanical head, an entirely different type of man is needed; he must be an economist, since constant compari-

sons in economics and trends must be judged weekly in order to discern (a) performance, (b) cost, and (c) progress. It would be fair to assume that the operating chief of a small road should have the facts lined up in such a way that the stranger should not have been compelled to take the local talent and obtain the response direct.

The example in the article would have been improved if a larger property had been used as a base and more of its history stated. A careful analysis of the repair, renewal, and depreciation of locomotives indicates that the cost of offsetting deterioration while serviceable locomotives are white-leaded or in storage awaiting call amounts to approximately eight per cent of the maintenance cost due to age, weather and other conditions independent of traffic.

It is necessary to have a classified knowledge of engine-house operation, both as to repairs and care, and to organize the forces and control the payroll allotment in such a way as to gain the proper result. The question of hours of service is vital, especially when there is more traffic than can be handled expeditiously, but there are other elements which contribute to terminal detention of locomotives, such as assignment of runs, handling the runs, distance between terminals, etc., so that the territorial lay-out and the distribution of terminals must be considered.

As to the handling of power through roundhouse terminals, if the expense and time of handling power to and from stalls is more than 30 per cent of the total, it is evident that track and turntable facilities, or fixed facilities are inadequate, either with respect to size, location or design.

The next largest element of cost is washing boilers, but this varies with water conditions and facilities for the expeditious handling of boiler wash-outs. It forms a simple study in relative time economics and cost well known to all mechanical department men, but not sufficiently appreciated or studied on the part of the average operating executive.

The other elements of expense are relatively low, and if train detentions are due to lack of power, these features can be augmented in proper proportion, considering in addition the necessary forces needed for running repairs.

As intimated in the article if no better arrangement can be found, it will certainly pay to acquire facilities on a saving-payment plan and spread the cost out over a reasonable period and evolve no cash expenditure in excess of present operating expenses. Studies covering such features should at least be formulated and discussed with a view toward some appropriate action. If it is desired to obtain a maximum use of property with a minimum of expense, it is not sufficient to stand idly by and say that improvements in the mechanical department cannot be made for lack of funds. If funds cannot be attracted by reason of the savings possible, and even where funds are available, it would be a good check on the policy of administration and a recommendation for placement of facilities and equipment, if an outside concern would be willing to make the improvement on a saving-payment plan, but that is another question.

The purchase of additional units of equipment involving locomotives, freight train and passenger train cars, has been resorted to in advance of giving proper study to facilities, with the result that operating hardships are pyramided upon the mechanical officer by reason of his being called upon to give proper response and return for rolling stock and locomotives, but this is entirely beyond his capacity without proper assistance. Even if it could be accomplished, the question of expense to carry out the work is very important, indeed, and where relief is not offered matters simply get worse, and close studies would reveal a vast field for economy. Such saving-payment plans could be studied and evolved for items as follows:

- (a) Modernizing power plants.
- (b) Adequate coaling, cinder pit and turntable facilities.
- (c) Shops and tool equipment.

- (d) Water treating plants.
- (e) Hot water washout systems.
- (f) Relocation and possible additions to existing facilities in order to obtain maximum distance between change of locomotives from trains and the elimination, to the greatest extent, of car inspection points, each one of which means delay to movement, and knowing that every unnecessary terminal is a machine to spend money unnecessarily; yet this cannot be cured by elimination—it must be handled by substitution.

L. K. SILLCOX,

General Superintendent Motive Power,
Chicago, Milwaukee & St. Paul, Chicago.

More on Depreciation— The Contradictions Analyzed

PHILADELPHIA, PA.

TO THE EDITOR:

To those who stand on the sidelines the recent discussion of railroad depreciation must be extremely confusing. One of the ablest members of the Interstate Commerce Commission makes the statement that "to a user of a railroad it is of no great importance whether or not there is depreciation in a well maintained railroad property." A correspondent in your July 5 issue attempts to show that it is extremely important to the shipper, and another correspondent in the issue of July 12 proves it is of no importance at all. Railway executives have testified at Washington that if depreciation accounting is extended to fixed property, the charges to operating expenses will be increased tens of millions of dollars annually, possibly more than a hundred million dollars, all of which must be paid by the user.

Why all these contradictory statements and who is right? The confusion arises from a failure to understand the different methods of operating a depreciation fund. Any study of the relationship of depreciation to rates and fair return must recognize the following:

How will the depreciation fund be accrued?

I—By a straight line formula, omitting interest.

II—By the sinking fund method (uniform contributions, smaller than under I, but adequate when interest is added).

How will the depreciation fund be used?

A—Ledger value, less salvage, will be withdrawn at the time of retirement of the facility, regardless of the amount contributed to the fund by the facility retired.

B—Only that portion of ledger value, less salvage, that has been contributed to the fund will be withdrawn at the time of retirement, the remainder of the retirement loss being charged directly to operating expenses.

The question of fair return also introduces two methods of determining the amount on which a fair return should be based:

1—Theoretical depreciation should not be deducted from value in determining the rate base.

2—Theoretical depreciation should be deducted from value in determining the rate base.

The eight ways in which these items may be combined have resulted in statements concerning rates and fair return that appear to be contradictory. The statements may, however, be reconciled if the authors will state how they propose to accrue their depreciation and use it after it is accrued. The method that the executives had in mind when they made the statement that operating expenses, and consequently passenger fares and freight rates, would be increased by accruing depreciation on fixed property was undoubtedly I-B-1, and

the accuracy of their prediction can easily be proved by an illustrative example. Similarly, the commissioner was right when he said depreciation made little difference to the shipper, for he probably had in mind method I-B-2.

It is not difficult to demonstrate that there are only two methods of accruing and using a depreciation fund that produce correct results, fair to the shipper and the carrier. They may be indicated by the symbols I-A-1 and II-B-1. That is, if the commission will admit the fairness of not deducting theoretical depreciation from the rate base, in view of the fact that depreciation funds for fixed property have not been built up and that railroad earnings have not been sufficient to build up such funds, depreciation may be accrued by the straight line formula and full ledger value withdrawal made for each unit retired; or depreciation may be accrued by the sinking fund formula and withdrawals made to the extent of the contribution made by the retired facility, the remainder being charged to operating expenses.

By the first method no fund is actually built up, the balance in the account being sometimes a credit and sometimes a debit, averaging zero over a period of years. This is merely an equalization of retirement loss, a method that has been employed by the Consolidated Gas Company of New York for many years with great success and fairness to all concerned. The second method results in the accrual of a fund and therefore forces the use of the sinking fund method. If the average life of the property is 30 years—that is, if the retirement loss in 30 years equals the average investment in that period—the fund will reach its maximum in that time and be somewhat less than 50 per cent of the investment.

The interest on this fund, plus the annual depreciation charge computed by the sinking fund method, will equal the average annual retirement loss. The building up of this fund has cost the shipper a constantly decreasing amount during the first twenty-five years, after which a saving results, in the thirtieth year and in each year thereafter amounting to the interest on the accumulated fund. It is evident that this method penalizes the present users of the property in order that a bonus may be given to future users.

A third method, I-B-2, may by accident produce approximately correct results, as the use of the straight line formula in connection with building up a fund tends to offset the carrier's loss resulting from deducting theoretical depreciation from value in determining the rate base. Certain combinations of average life and percentage of theoretical depreciation deducted may produce exactly correct results, but only by accident.

Of the five other methods, four are unfair to the carrier and one is unfair to the shipper. We are, therefore, forced to choose between the first and the second. If simplicity is not a sufficient argument to recommend the first method, surely the unfairness of making present users contribute to a fund from which future users may benefit should eliminate the second method. Furthermore, the practical effect of the second method will be in many cases to increase rates more than the traffic will bear, with the result that the depreciation fund will be built up by the carriers out of the fair return rather than by the shippers out of rates.

Throughout this discussion it is assumed that the carrier referred to has been in existence sufficiently long to have approximately uniform retirement charges; it is also assumed that no depreciation fund for fixed property has been accumulated out of earnings. It is therefore typical of most of the carriers in this country.

Your correspondent of July 5 may be right in saying that the most vital point in valuation proceedings, depreciation, is being slighted. If that is true it is about time we railroaders awaken and follow the lead of our friends in the American Gas Association in their campaign for clear thinking concerning theoretical depreciation.

H. C. C.



B. & O. Replaces Bridges of Historic Interest

Tests of the Materials and Study of Details Afford Record of Early Structural Work

By Philip George Lang, Jr.
Engineer of Bridges, Baltimore & Ohio

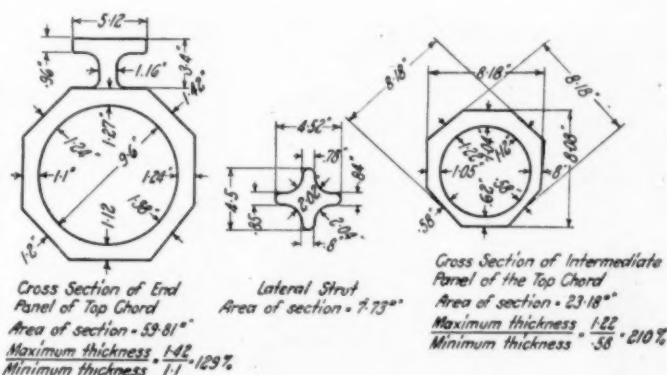
IN 1923 THE BALTIMORE AND OHIO reconstructed three bridges on the Valley Railroad of Virginia, these bridges being located in the Shenandoah Valley between Harrisonburg and Lexington. These structures are known as Bridges 117, 120 and 129. Bridge 117 crosses the North river west of Mount Crawford, Va., and the old structure consisted of two deck Bollman truss spans, each 98 ft. 6 in. long, and one deck Bollman truss span 148 ft. 9 in. long. The old structure at Bridge 120, which crosses the North river near Cave Station, Va., consisted of two deck Bollman truss spans 98 ft. 7 in. and 63 ft. 5 in. long, and one deck Whipple truss span 147 ft. long. At Bridge 129, crossing the Middle river east of Verona, Va., the old structure consisted of three deck Bollman truss spans, each 98 ft. 7 in. and one deck Whipple truss span 147 ft. long.

These spans were supported on piers and abutments built of a good quality of local limestone. The bridges were fabricated and erected in 1872 and 1873. Notwithstanding the fact that locomotives and rolling stock have steadily increased in weight and effect on bridges since the early seventies, these bridges, both superstructure and substructure, continued in service for slightly over half a century without material reinforcement or repair of either stone work or iron work.

The Bollman truss was designed and patented by Wendell Bollman, a resident of Baltimore, employed by the Baltimore and Ohio for 18 years and its "master of road" for 10 years. The three bridges mentioned are of construction similar to Bridge 118, crossing the North river at Mount Crawford, Va.,

composed of two spans of 147-ft. single-track Deck Whipple trusses, which will be reconstructed this year.

As a matter of record, at the time the old spans were removed typical details were prepared from field measure-



Specimen Cross Sections of Members of Bollman Trusses,
Showing Variations in Thickness

ments, and thin sections of the cast and wrought iron members were obtained for chemical and physical tests of the materials. The floorbeams were built-up box sections, 12 in. wide and 18 in. deep, consisting of a cast iron top flange having unspliced butt joints, two 17-in. by $\frac{1}{4}$ -in. iron webs and

an iron channel forming the bottom flange. The stringers were timber, resting on cast iron brackets attached to the floorbeam. The compression members in the Bollman trusses were hollow octagonal cast iron; in the Whipple trusses Phoenix sections were used.

Prior to dismantling the spans, a great deal of doubt existed in regard to the joints of the top chords at the panel points for, as far as could be ascertained, these were ordinary butt joints. Upon dismantling, however, it developed that one member entered the other for a distance of three inches.

Although the cast iron compression members had been drilled at random spots to determine their thickness, there was always considerable doubt as to whether this thickness was uniform. The sections of the octagonal cast iron members finally obtained were measured, and it developed that, in one such section, the thickness varied from 0.42 to 1.22 in. or 300 per cent. This was undoubtedly due to the floating of the core when the casting was made. A variation in thickness occurred in all members measured. In the case of the end panel of the top chord of a Bollman truss, such a variation was quite serious, due to the bending induced in this chord member by the peculiar detail immediately over the end bear-

theless, at no point was any loss of section due to rust or corrosion observed.

Typical details of the Bollman trusses in Bridge 120 and cross-sections of the compression members are shown in the drawings. The make up of the floorbeams and top chord section can be seen in the photograph taken of this bridge before the work of replacement was started.

Chemical analyses were made of two specimens of cast iron, with the following results:

Graphitic carbon	2.03	to 2.42	per cent
Combined carbon	0.37	to 0.83	per cent
Sulphur	0.046	to 0.075	per cent
Phosphorus	0.62	to 0.92	per cent
Manganese	0.41	to 0.68	per cent
Silicon	1.41	to 2.32	per cent

Chemical analyses were also made of two wrought iron specimens, with the following results:

Combined carbon	0.05	per cent
Sulphur	0.025 to 0.084	per cent
Phosphorus	0.20 to 0.34	per cent
Manganese	0.02	per cent
Copper	Trace	

The physical tests resulted as follows:

Wrought Iron		Elastic limit	Tensile strength	Per cent elongation	Per cent reduction	Fracture
Description	Area sq. in.	lb. per sq. in.	lb. per sq. in.	in 8 in.	in area	
Tie bar, 2½ in. by 1 in.....	2.46	32,500	50,000	29	27	Irregular-fibrous
Counter rod, 1 in. diameter.....	0.785	38,300	54,800	17	26	Irregular-fibrous
Tie bar, 3½ in. by 1½ in.....	3.39	32,900	54,000	20	20	Irregular-fibrous
Tie bar, 4½ in. by 1¼ in.....	4.92	29,000	50,000	35	29	Irregular-fibrous
Bar, 2½ by ¾ in.....	2.40	32,500	48,000	29	34	Irregular-fibrous
Bar, 4½ in. by 1 in.....	4.15	28,400	50,000	32	28	Irregular-fibrous
Bar, 3 in. by 1¼ in.....	3.60	35,000	53,500	22	23	Irregular-seamy

ing, where the truss rods, owing to their number and arrangement, formed an eccentric connection. This end top chord, while essentially octagonal in shape, with a circular core, was cast with a flanged rib on the upper side.

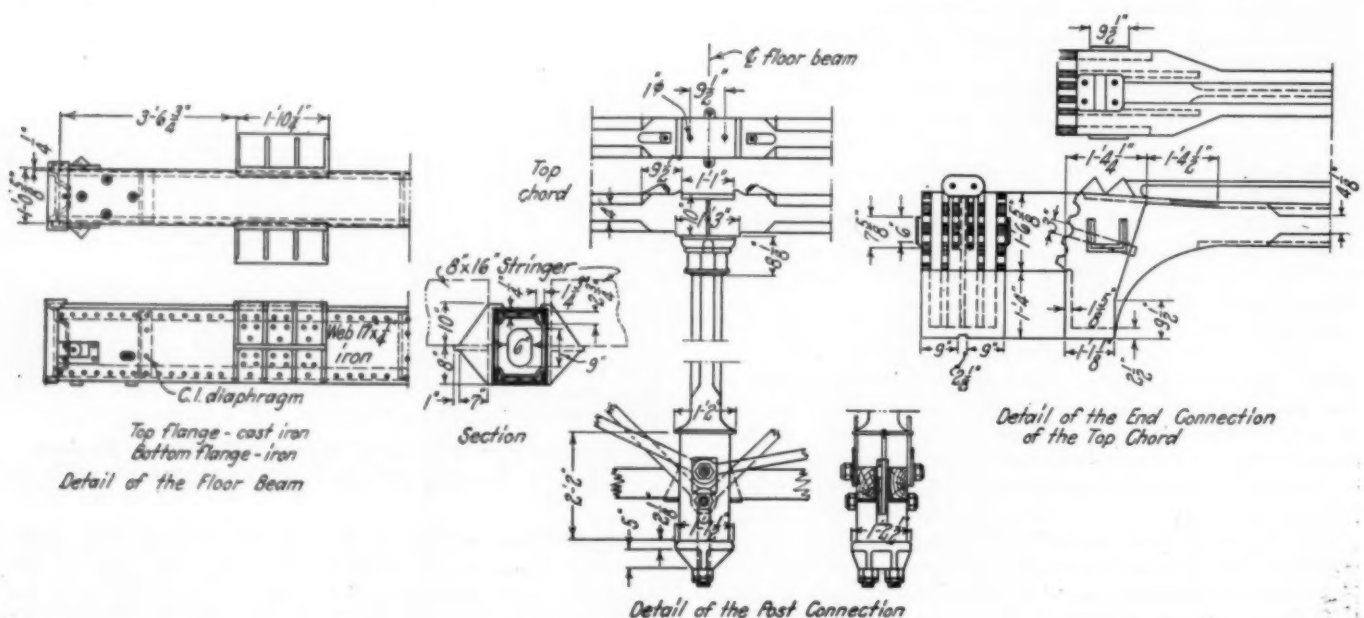
The long tension members in the Bollman trusses were made of two or more rods, having fork and eye ends, pinned together. In these joints no motion was possible, as they were rusted tight.

The records indicate that these structures had not been painted for at least 23 years, certainly not since 1900; never-

Tests of the material in the pins, which were wrought iron forgings, gave results as follows:

Elastic Limit	Tensile strength	Per cent elongation	Per cent reduction	Fracture
lb. per sq. in.	lb. per sq. in.	in 4 in.	in area	
31,500	46,200	17	25	Seamy
36,600	44,900	8	50	Crystalline
36,600	54,000	6	10	Crystalline
38,000	48,000	23	30	Seamy

Tests of cast iron specimens gave the following results—



Typical Details of the Bollman Spans

Cast iron top chord	
Elastic limit—lb. per sq. in.	29,400
Tensile strength	53,000
Elongation in 8 in., per cent.	10
Reduction in area, per cent.	5
Fracture	Not seamy but looks dead

CHEMICAL ANALYSIS

Combined Carbon	0.05	per cent
Sulphur	0.025	per cent
Phosphorus	0.20	per cent
Manganese	0.02	per cent
Silicon	Trace	

The character of the masonry is clearly indicated in several of the photographs. One pier in Bridge 129 contains a marble name and date plate, reading as follows—"James L. Randolph, C. E. R., John Smith, Contractor, 1873." Records indicate that this masonry has not been pointed since originally constructed, and no defects had developed except in the courses near the tops of the piers and abutments, immediately under the truss shoes, where some stones were cracked.

The following is a description of the reconstruction of Bridge 120, and is typical of the procedure observed at the structures.

Each of the 100 and 150-ft. spans was replaced with two



The Old Trusses Were Lowered to the Ground, Bridge 129

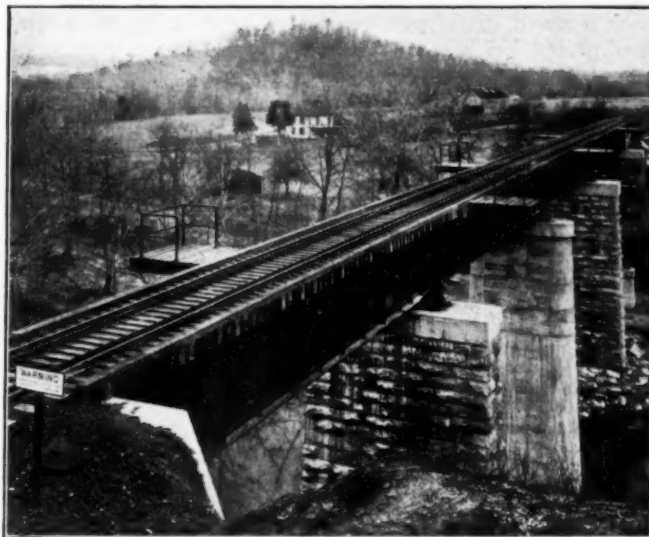
girder spans of equal length. A concrete pier was built to the underclearance line of the existing channel span. The other 100 and 150-ft. spans were sub-divided, concrete pedestals and steel bents being used.

The alterations to the existing substructure, therefore, consisted of the remodelling of the bridge seats. The distance from base of rail to bridge seat was approximately 4 ft. for the old truss spans, and about 10 ft. for the new deck plate girder spans. Such reconstruction resulted in the removal of all damaged stones in the top courses of the existing masonry, and the placing of reinforced concrete bridge seats having a minimum thickness of 2 ft.

The existing superstructures, being very light and of obsolete design, were severely overstressed by the power in operation. The maximum gross weight of cars operated over these bridges had, for some years, been limited to 110,000 lb. For the same reason it was necessary to provide in the specifications for erection that extreme care be exercised in the passage of the contractor's equipment across the bridges, and in arrang-

ing for all erection work, to see that the structures were not stressed beyond the limit of their carrying capacity. The contractor's derrick car was stripped to minimum weight for movement over the structures.

On successive Sundays, after the necessary preliminary work was done, the contractor removed one existing span and



The New Bridge 120, Showing the New Concrete Caps on the Old Stone Piers and the New Intermediate Concrete Piers

placed two new spans, beginning at one end of each bridge and continuing to the far end. The contractor was not permitted to work from the existing superstructures with his equipment.

The erection plans and methods of procedure provided for



Placing the New Girders Inside the Old Trusses

the removal of the minimum amount of stonework between the truss shoes, the existing stringers being kept blocked to the masonry. This permitted the setting of the deck plate girder spans temporarily on timber shims on the old masonry and on steel bents resting on the new piers and pedestals which

were erected between the existing trusses prior to setting the new girder spans.

In order to set the new girder spans, it was necessary to remove the entire old floor system, together with the top laterals. Doubt existed in regard to the character of the joints in the top chords of the old trusses, and, in order to prevent their buckling when the floor system and top laterals were removed, these were reinforced by 8-in. by 16-in. timbers placed prior to the removal of the floor system and laterals. The derrick car removed the floor system from half of the span, and set the girders, one at a time, after which the laterals, cross frames and ties were placed. After one span of girders had been set, the top chords of the old trusses were clamped to the girders, and track rails advanced over this span. The operation was then repeated for the remainder of the existing truss span. The old trusses were then lowered bodily to the ground, and dismantled at convenient times. One view indicates the character of the steel bent placed on top of the concrete pier constructed in the center of the channel span. The concrete was afterwards carried up and around this steel bent, so that the final appearance was that of a monolithic pier.

After all of the girder spans had been set, the remainder of the upper courses of the existing masonry was removed, and new bridge seats constructed.

Southern Pacific Saves Over Two Million On Scrap

THROUGH ACCUMULATION and reclamation of material a saving of \$2,531,878.72 was made during 1923 on the Pacific System of the Southern Pacific, according to a report made by A. S. McKelligon, general storekeeper, in the Southern Pacific Magazine for June, 1924.

Out of the vast accumulation of scrap gathered in by supply trains from all points on the System, \$612,955.32 was saved through reclamation work. The company sold 51,665 tons of scrap during the year for \$665,584.12, and itself used 58,245 tons valued at \$1,253,339.28. The statement for 1923 follows:

SAVING BY RECLAMATION	
Value of reclaimed materials if purchased new.....	\$970,139.18
Scrap value	\$17,758.55
Reclamation costs	339,425.31
Total cost	357,183.86
Saving effected	612,955.32
SCRAP ACCUMULATION	
Scrap sold, 51,665 tons for.....	665,584.12
Scrap used in industries, 58,245 tons, value.....	1,253,339.28
Total saving	\$2,531,878.72

This statement is exclusive of savings effected by conservation and other economies such as the manufacturing of useful articles from worn out or discarded materials. No record is kept of such savings.

Among the scrap material sold were empty cement sacks for which a credit of \$31,094.04 was given. Typewriter ribbon spools to dealers for \$45. Scrap wood sold to employees and others for \$8,879.54, and scrap cross ties sold to employees for \$8,602.94. Empty lime barrels returned to shippers brought \$1,270.40; empty reels returned to shippers, \$1,559.40; coal screenings sold to outsiders, \$1,059.83; charcoal dust sold to outsiders, \$317.34, and coke screenings sold to outsiders, \$520.50. Scrap fire brick was sold to manufacturers for \$3,696.76. Hides sold for \$29.60. Empty paint, oil and grease barrels were returned for credits of \$1,640.00. Scrap battery elements returned to manufacturers brought \$12,680.41; scrap paper, \$2,336.00, and empty acid carboys returned to dealers, \$3,239.00.

Reclamation is considered as scrap entirely rebuilt into usable material. The rebuilding of couplers, switch points,

frogs, etc., by the acetylene welding torch is indicative of this practice. Reports show the following results of these operations for 1923:

Couplers reclaimed, 3,055, savings effected.....	\$35,758.15
Switch points, 1,219, savings effected.....	20,255.10
Frogs, 135, savings effected.....	8,355.37
Brake beams (not welded) 12,275, savings effected.....	16,104.27

Among other representative examples of reclamation were scrap waste, which was thoroughly cleaned, carded and all foreign substances removed, boiled in oil, packed in barrels and used in place of new. As compared with the cost of similar quantities of new waste this netted a saving of \$91,894.37. Repairing 10,904 track shovels by inserting new handles or welding blades netted a saving of \$7,368.90. Regrinding 1,140 cast iron wheels saved \$4,389.24. Reclaiming 2,585 track wrenches saved \$2,360, reclaiming 581 scrap hand lanterns saved \$402.45, and reclaiming 470,000 scrap track spikes saved \$8,235.

A great deal of material was taken from scrap piles, cleaned and renovated and placed back in stock. Among this material was the following:

Castings, all kinds.....	720,000 lb.	\$45,000.00
Rail joints	19,150	28,000.00
Tie plates	32,000	3,500.00
Brake shoes	15,850	2,850.01
Coupler knuckles	7,100	25,930.00
Lumber	615,000 ft. bm.	18,000.00

Further economy was effected by many practices of making material, discarded by one department or service, usable for others. Among these materials were oil storage tanks which were made from old boilers. The cost of this work averages \$50 for each tank while the cost of new tanks averages \$200 each, effecting a saving of \$1,747.20. Old paint brushes are received from painting jobs through conservation practice of exchanging new tools for old. Those satisfactory for rough work are used for painting castings, track material, locomotive front ends, etc. The handles of unusable brushes are saved and sold to manufacturers. The saving from this work in 1923 was \$297. Scrap burlap and coverings from purchased waste and other baled materials are re-used in packing materials and for covers for barrels when making shipments. The saving was \$129.26. Rags were accumulated, relaundersed by boiling in lye with live steam, rinsed and reissued as clean rags, effecting a saving of \$192.75. Defective parts of hose were cut off and fittings re-inserted, saving \$732.61. Barrels are re-coopered and cleaned and used for fire protection and for making shipments, the saving being \$5,698. Scrap rope, received with shipments delivered to the company in packages, bundles and sacks, was re-used as a substitute for twine with an estimated saving of \$4,118.

All paper was formerly bought in the sizes required but it is now ordered in regular paper house dimensions, and cut to the sizes required on an automatic paper cutter, saving \$3,000. Old five-gallon cans brought in by supply trains to district stores, if mutilated, were repaired by electric soldering iron and re-used over and over for shipping purposes, affording a saving of \$4,903.23. Scratch pads formerly purchased in the sizes required, are now made at the stationery stores from old records, tariffs, obsolete forms, etc., effecting a saving of \$1,350. Stamp pads formerly purchased are now manufactured with a saving of \$200 per year. Typewriter oil was formerly purchased in small cans with spouts but is now purchased in bulk and put in small bottles to be used in regular oilers furnished by the typewriter company when machines are purchased, effecting a yearly saving of \$61. A great deal of tin ware is made from scrap metal car roofing, among the articles being paint buckets, indicator number cases, torpedo and flag cans, car ventilators, roof plates, sand scoops, "Men at Work" signs, dope buckets, smoke jacks, refuse cans, oiling buckets, hot box coolers, material racks, sand buckets and coal scuttles. The savings for 1923 was \$3,322.

Why Continue Flagging in Automatic Territory?

Existing Operating Conditions Permit Divided Responsibility Between Engineman and Flagmen

By J. Lowell White

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IT IS THE PURPOSE of this article to show that in automatic signal territory, the continued use of the flagging rule, Rule 99, creates a divided responsibility which not only tends to cause collisions, but actually has done so repeatedly in the past six years and also suggests that the placing of the responsibility squarely where it belongs; that is, on the engineman, will to a large extent diminish rear-end collisions. In other words signal engineering has developed a system of automatic block signal flagging which is accurate and positive; but man, always fearing and clinging to the practices of his forefathers, still decrees that the flagman must flag as in days of yore, with the result that the engineman, controlled by his subconscious thought (as to the presence of the flagman) does not observe signals as he should and the flagman, also governed by the underlying thought (as to the protection of the automatic signal) does not go back as far as necessary. It also follows that when these two lapses occur in combination accidents have happened and will happen again.

There is a third result from a continuation of Rule 99, which acts as a hazard on a railway protected by automatic signals, especially if that road is one of dense, high speed traffic; namely, the risk which follows from keeping a train, stopped for any cause, standing while waiting for the flagman to return to it after the real cause for stopping has ceased to exist. The flagman may not have had time to go back a sufficient distance to give full protection from a following train moving at 40 or 50 miles an hour, when recalled. Yet he may be far enough back so that it will take him two or three minutes to return to his train; in which period a fast train could easily overtake the standing train, whereas in the same period, if it were possible for the stopped train to use this time for acceleration it could very much lessen the chance for, if not entirely avoid, the collision. A study of the official reports of the investigation made by the Bureau of Safety of the Interstate Commerce Commission of the 39 rear-end collisions which occurred in automatic signal territory in the six years from 1918 to 1923 makes it possible to classify these accidents under eight heads.

Accidents Where Engineman Failed to Obey Signal and Flagman Did Not Flag As Required by Rule

In an accident near Ellwood City, Pa., on August 6, 1922, a freight train, while moving slowly, was run into in a short tunnel. The engineman of the following train passed a caution signal without bringing his train under control and stated that he thought the tunnel was clear because no fusees or torpedoes had been encountered. (He relied on the flagman although the signal told him the track might be occupied.) The flagman stated that he saw the permissive signal go to the caution position, and the logical inference is that on that account he failed to take the flagging precautions he would have if there had been no signals.

In the investigation of an accident on November 1, 1920, at Stanton, Ia., the engineman failed to be governed by caution and home signals and the flagman went back only 400 ft. although he had five minutes available. Each apparently relied on the other although on account of the engineman being killed no definite conclusion can be reached.

In an accident at Upton, N. Y., on July 19, 1919, the

engineman claimed that the home signal was clear although all the evidence was to the contrary and showed that he was probably attending to the lubricator or gages when he passed the signal. The flagman also failed to flag properly. From this it may be argued that it is for just such conditions that Rule 99 is retained. The answer to this argument is that the flagman did not prevent the accident; he probably relied on the automatic signal as protection. This is not a complete answer, but in meeting the argument may not the question be raised as to whether, admitting that such accidents may still occur, there will not be fewer of them when the engineman is keyed up to his responsibility for the observance of signal indications by knowing that the signal is the only flagman between him and the train ahead?

On February 20, 1923, at Rummerfield, Pa., an accident was caused by the failure of the engineman to observe and obey automatic signal indications and by the failure of the flagman to protect his train properly. The flagman had 10 min. in which to go back, but was only out about 1,050 ft. and at that without fusees or torpedoes. The engineman responsible was killed.

In the serious accident at Sulphur Springs, Mo., on August 5, 1922, "the evidence points to the conclusion that the engineman was not complying with the rules relative to the observance of the caution indication of distant signals, but was relying entirely upon that of the home signals." This carries with it the assumption that he was also relying upon the flagman. The flagman made no attempt to protect the rear of his train because "it had not been customary."

In the South Byron, N. Y., disaster on January 12, 1919, the accident "was caused by the failure of the engineman properly to observe and be governed by the automatic block signal indications. A contributing cause was the failure of the flagman to go back a sufficient distance to protect his train, and to display lighted fusees as required by rule." In this case the flagman seems to have relied upon the signals, while the engineman may have been asleep. Note that the flagman did not prevent the accident.

At Walker's Mill, Pa., on August 2, 1918, the primary cause "was the failure of the engineman to observe automatic caution and stop signals. The weather was foggy and the signals could be seen but a short distance. The flagman was equally responsible with the engineman. He evidently relied upon the automatic signals to protect his train, entirely disregarding the duty required of him by rules. If he had performed his duty, the accident might have been prevented." True, but may it not be said with equal force that if the responsibility had been clearly fixed upon the engineman to protect his train by observing signals, instead of being divided between the engineman and the flagman, the chances of accident would have been reduced?

In Philadelphia, Pa., on January 18, 1919, an accident was caused by a "calling-on signal . . . being unintentionally displayed for the passenger train involved in the accident; also failure of the engineman to reduce speed and operate his train under absolute control as required by the rules . . . and failure of the crew of the preceding train to provide adequate flag protection."

At Elwood, N. J., August 24, 1919, a rear-end collision was caused by the "failure of the engineman to observe and

obey automatic block signal indications and by the failure of the flagman to provide adequate protection for his train." The engineman was perhaps asleep. The flagman did not prevent the accident; it was shown that he relied on the automatic signals as he placed his first torpedo on the rail only about two car lengths from the rear of his train. This train on a busy road had been stopped several times by signals within a comparatively short distance. Such a condition must, in the flagman's mind if not in that of his officer's, create a nice question; perhaps too fine for the average flagman-mind, as to whether the flagging rule should be observed literally or the train saved delay by reason of waiting for his return. It raises a question, too, for the engineman of the train being protected. Perhaps he does not expect to have to stop more than an instant and does not "blow out" his flag; in the meanwhile time passes and the flagman is worried to know what to do. Of course, every good railroad man knows what should have been done, after the accident has occurred, but we do not always do it, or probably never will as long as we are given opportunity to think that if the other fellow lives up to the rule, there is a possibility of "getting by" safely.

A similar case occurred at Colonia, N. J., on October 18, 1920. The engineman was awake but failed to obey the signal and the flagman did not use all the means available for protecting his train. The train hit had made two stops within a short distance and this, to the writer, somewhat limits the flagman's responsibility as suggested above.

Near New York on October 28, 1921, an engineman missed two signals in a dense fog and instead of reducing speed until he could locate himself, he kept ahead until too late to prevent a collision. Probably his subconscious mind made him take a chance on the flagman being in position to protect the situation; which he was not. Censure is placed by the investigation on both the engineman and the flagman and responsibility is divided.

At Fort Washington, Pa., on January 13, 1919, a passenger engineman failed to reduce speed at a caution signal. The flagman of the train ahead, having 15 min., went back only 1,500 ft. Each relied on the other and 14 people were killed and 22 injured. Near Linfield, Pa., on November 2, 1920, a rear-end collision occurred after which the engineman admitted passing a caution signal without reducing speed. It was also shown the flagman did not give his train the protection he should in the time at his disposal. Two other employees on the colliding engine either failed to note or call the attention of the engineman to the caution signal which was ignored. At Corlett Junction, Wyo., on August 19, 1920, apparently the flagman relied on the automatic signals, which the engineman of the following train did not heed with the result that a collision occurred on straight track on a clear night.

Of the accidents being considered four occurred as a result of the engineman failing to obey signals and the flagmen using bad judgment. These accidents happened at Solomon's Gap, Pa., November 28, 1920; Nilwood, Ill., February 12, 1923; Bailey, Pa., March 2, 1921 and Highspire, Pa., October 14, 1923.

In six of the accidents during this period the engineman failed to obey signals and the flagman did not have time to go back a sufficient distance to provide proper protection; these accidents occurring at Hanahan, S. C., December 9, 1922; Chicago, February 4, 1923; Kansas City, Mo., November 13, 1920; Ivanhoe, Ind., June 22, 1918; Forsyth, N. Y., December 9, 1923, and E. Port Chester, Conn., July 31, 1919.

Accidents where the engineman failed to obey signals and no flagging was required occurred at water stations or within yard limits at West Salem, Ohio, August 22, 1918, and at Hammond, La., April 13, 1923. In both cases the engineman was probably asleep. It is possible that if flagging had been required and if the flagman had been out a sufficient distance

with torpedoes these accidents might have been prevented, but there is no certainty about it. In fact nothing short of automatic train control (if that) can be insurance against the sleepy engineer.

Accidents where engineman failed to obey signals and flagman did his full duty would seem to be cases which could have been prevented only by an effective automatic train control system, when such a system has been found. Such accidents occurred at Worcester, Mass., June 15, 1920; Schenectady, N. Y., June 9, 1920; Canastota, N. Y., September 18, 1920; Cooks Falls, N. Y., November 29, 1922; White House, N. J., January 25, 1919 (some difference of opinion as to whether torpedoes used); Paradise, Pa., November 25, 1923, and McDonald, Mich., January 11, 1923.

In some accidents the engineman failed to obey signals and defective air brakes also were to some extent responsible. The accident at Schoharie Junction, N. Y., October 14, 1918, is an example of such circumstances. Three accidents caused by unusual blizzard weather conditions when both signals and flagging proved ineffective occurred in Wyoming on one road within a comparatively short distance on the night of November 5, 1922.

Several accidents during the six years were caused by defective signal maintenance. In the case at Georgetown Junction, Md., the flagman relied on the automatic signal operation and failed to flag as he should have done. Lax supervision of signal maintenance was indicated by the investigation. If the sole responsibility for safe operation had been on the automatic signal instead of being divided with the flagman, might not the signal maintenance have been better? At least it must be admitted that the flagman did not prevent the accident and under a dual system the temptation is ever present for him to neglect his duty.

In the other accident near Gould, O., on September 25, 1921, the primary cause was a signal which displayed a caution instead of a stop indication when the block which it governed was occupied, the signal failure being caused by defective wiring. In this case there was also a semi-automatic feature of the signal operation, by which, if the operator had obeyed the rules, the signal at fault would have shown the proper stop indication, notwithstanding the defective maintenance. A technical examination of these two cases might show that there were some unusual conditions, perhaps bad signal practice, surrounding these accidents. If an automatic train control system had been in use at these points, under the defective maintenance supervision which was shown to exist, it is very likely that it also would have failed.

Summary Indicates Division of

Responsibility Is Cause of Accidents

Summing up, we find 34 accidents out of 39 where the engineman failed to observe and obey the signal indication. Of these 34 were:

- 14 where the flagman did not flag as required by rule.
- 4 where the flagman used bad judgment.
- 6 where the flagman had no time to flag.
- 2 where the flagman was not required to flag under the existing rule.
- 7 where the flagman did his full duty but did not prevent the accident.
- 1 in which defective air brakes were partially responsible.
- 3 (in one night) caused by extreme weather conditions.
- 2 in which defective signal maintenance must bear the blame.

The striking fact about these cases is that in 34, or nearly 90 per cent, the failure of the engineman to heed the block signal was the primary cause. We must find the reason for this almost universal dereliction on the part of the enginemen, where accidents occurred. Turning to his rule book he finds that "when a train stops under circumstances in which it may be overtaken by another train" the flagman "must go back with stop signals a sufficient distance to insure full

protection." Why then should he (the engineman) give the distant signal more than a mental note in passing, if the flagman must be out far enough to protect him fully? It is very true that the rule book also provides that the engineman passing a caution signal must be prepared to stop at the next home signal; it is here that the confusion occurs.

Many enginemen running fast trains got their early training without automatic signal protection. Consequently when, under the spur of maintaining exacting schedules, they find a signal at "caution" it is difficult for them to grasp the idea that the flagman may not be out doing his full duty. The flagman, too, having knowledge of both rules, which divide the responsibility for safe operation, is, being human and sometimes lazy, prone to assume that the engineman will do his duty and that in consequence he need not go back as far as he would if there were no automatics. This is borne out by the fact that in 14 of the 34 accidents where the engineman failed to obey the signal the flagman too failed to do what was required by rule.

Another evil of this dual system, now instilled in the minds of trainmen, arises from the fact that in many cases it is impossible for the flagman to get back far enough to protect. Witness six of the accidents mentioned above. Therefore it becomes doubly necessary to rid the engineman of the idea that the flagman will protect him if we are to have safe operation. Some roads already recognize this in dense traffic territory. (See investigation of accident in Chicago terminal where the flagman is only required to go from 30 to 60 ft. back of the standing train.)

What safer step could the managements take in order to impress upon the engineman the importance of obeying the automatic flagging system than to tell him that henceforth, in automatic territory, Rule 99, is abolished and that the sole duty of the flagman, so far as protecting the rear of his train, will be to see that the markers are bright and to burn a fusee besides, immediately behind the last car, when weather conditions justify?

Such action would also permit a stopped train to proceed immediately when the cause of stoppage had ceased to exist and would thereby reduce the hazard of being hit by a following train, due to the necessity of waiting for the returning flagman. It would do away with the necessity for blowing-out and blowing-in flagmen; an old fashioned nuisance which is not now tolerated in some communities.

The railroads have spent millions of dollars to install automatic signals. These have been tried out over a period of many years and found reliable and true. Has not the time therefore arrived, when, to get the maximum safety from our automatic signal operation, we should discard the man-system, which the increase of traffic has made actually unsafe, and put the full burden of responsibility on the automatic flagman, instead of leaving it divided as now between the human and automatic with the result that we do not get the full efficiency of either?

To those who may point to the two accidents above, in which defective signals were to blame, the only answer which can be made is that so long as there are railroads there will be some accidents. However, it is evident that with the signal system carrying the full responsibility for flagging protection, the supervision of signal maintenance will be, if anything, better than in the past and the percentage of accidents traceable to this cause still very small; while as an offset there will be a noticeable reduction in those rear-end collisions which are due to the engineman disregarding signal indications.

To the argument that the elimination of Rule 99 will put too much responsibility on one fallible human being there is no complete answer, other than automatic train control; which is the question under discussion here. Such an argument wholly overlooks the faults of the present system, which tend to make both employees, between whom the responsi-

bility for safe operation is now divided, lax in the performance of their duties; instead of bracing one man (the engineman) to a proper sense of his responsibility.

Freight Car Loading

WASHINGTON, D. C.

FREIGHT CAR LOADING during the week ended July 12 was somewhat above the figures reported during June but was still below the level attained during May. The total was 910,415, a decrease as compared with the corresponding week of last year of 109,394 cars, although an increase as compared with 1922 of 59,739 cars due entirely to heavier coal loading than that of the strike year. Grain and grain products and livestock were the only classes of commodities to show increases as compared with last year, while livestock, coal and miscellaneous freight were the only classes to show increases as compared with 1922. The Southwestern district continued to show an increase in loading as compared with last year. The summary as compiled by the Car Service Division of the American Railway Association is as follows:

REVENUE FREIGHT CAR LOADING

Districts	Week Ended July 12, 1924		
	1924	1923	1922
Eastern	213,046	244,042	194,621
Allegheny	184,588	225,237	168,489
Poconong	42,429	44,142	33,933
Southern	128,550	130,566	119,277
Northwestern	137,828	172,731	157,022
Central Western	139,885	141,513	123,638
Southwestern	64,089	61,578	53,696
Total Western districts	341,803	375,822	334,356
Commodities			
Grain and grain products	41,970	39,491	48,595
Livestock	33,838	32,169	30,081
Coal	146,177	193,922	77,097
Coke	7,140	14,515	9,696
Forest products	57,658	71,775	57,674
Ore	59,423	89,087	69,445
Mdse., l. c. l.	234,367	240,784	240,620
Miscellaneous	329,842	338,066	317,468
Total	910,415	1,019,809	850,676
July 5	759,942	850,082	707,025
June 28	908,355	1,021,471	862,845
June 21	903,700	1,004,982	866,321
June 14	902,710	1,008,838	848,657
Cumulative total January 1 to date	24,857,064	25,875,393	21,577,968

The freight car surplus during the week ended July 7 averaged 359,191 cars, an increase of 2,802 cars as compared with the preceding week. This included 169,607 coal cars and 149,118 box cars. The Canadian surplus was 23,475 cars, including 20,450 box cars and 200 coal cars.

Car Loading in Canada

Revenue car loadings at stations in Canada during the week ended July 12 totalled 53,178, as compared with 48,946 cars in the previous week, the decline being more or less seasonal. Compared with the same week last year the increase was 1,176 cars, and the cumulative totals to date show an increase for this year over 1923 of 115,502 cars, or 8.3 per cent.

For the Week Ended

Commodity	1924		
	June 28 Cars	July 5 Cars	July 12 Cars
Grain and grain products	9,626	6,796	5,864
Live stock	2,060	1,740	2,038
Coal	4,978	4,529	4,811
Coke	203	181	288
Lumber	4,099	3,577	3,852
Pulpwood	2,333	1,869	2,008
Pulp and paper	1,521	1,415	1,790
Other forest products	2,593	2,200	2,471
Ore	1,408	1,605	1,441
Merchandise l. c. l.	15,834	13,668	16,055
Miscellaneous	12,845	11,366	12,560
Total cars loaded	57,500	48,946	53,178
Total cars received from connections	30,759	28,981	25,214
Total cars loaded for corresponding week, 1923 ..	54,431	48,595	52,002
Cumulative loading to date—1924			1,503,355
1923			1,387,853

Tons Per Loaded Car

WASHINGTON, D. C.

THE CAR SERVICE DIVISION OF THE AMERICAN RAILWAY ASSOCIATION has compiled a special commodity loading statement for the years 1923 and 1922 showing

ing the number of cars loaded and the average load per car of the commodities or classes of commodities shown in the Interstate Commerce Commission commodity classification by districts and by railroads.

The recapitulation, showing the average loading by districts, is as follows:

RECAPITULATION OF TONS PER LOADED CAR																
I. C. C. COMMODITY CLASSIFICATION—A. R. A. DISTRICT CLASSIFICATION																
COMMODITY	Eastern district		Allegheny district		Pocahontas district		Southern district		Northwest district		Centralwest district		Southwest district		Total all districts	
	1923	1922	1923	1922	1923	1922	1923	1922	1923	1922	1923	1922	1923	1922	1923	1922
Products of Agriculture:																
Wheat	38.6	37.4	42.0	40.5	36.0	33.7	38.1	37.6	40.9	40.6	41.0	41.5	37.5	37.6	40.3	40.1
Corn	36.4	36.6	35.8	36.6	32.4	32.6	34.6	35.9	40.2	40.4	39.1	39.5	33.8	34.3	37.8	38.3
Oats	30.0	29.3	30.1	29.5	27.2	28.5	25.5	25.2	34.5	33.1	31.5	30.5	27.4	26.4	30.9	29.9
Other grain	29.3	30.7	33.3	33.5	22.5	27.6	21.4	20.8	38.7	39.1	35.0	35.0	25.8	26.0	34.6	34.8
Flour and meal	26.6	25.8	26.0	25.8	20.0	19.7	17.5	17.6	26.8	27.0	25.7	25.7	24.3	24.4	24.9	24.8
Other mill products	21.2	21.0	22.4	22.0	20.5	20.9	18.0	17.7	25.0	24.2	23.2	23.1	21.9	21.6	21.8	21.6
Hay, straw and alfalfa	12.1	12.0	12.4	12.4	12.3	12.5	11.8	11.7	12.8	13.0	12.7	12.7	11.8	11.9	12.3	12.4
Tobacco	12.7	11.6	12.3	13.4	10.5	10.5	10.4	10.5	14.5	14.6	14.4	14.5	16.2	22.4	10.8	11.1
Cotton	14.5	13.5	14.5	15.3	10.8	13.9	9.5	9.8	13.9	15.2	13.5	12.4	12.6	13.3	11.5	11.5
Cotton seed and products (excluding oil)	24.1	19.0	20.7	23.2	21.9	24.7	20.5	20.8	25.9	21.2	25.3	24.9	24.2	24.0	22.5	22.4
Citrus fruits	13.9	13.6	14.3	15.5	14.6	14.1	14.2	14.3	16.9	13.3	15.9	16.9	15.6	16.3	15.0	15.4
Other fresh fruits	13.1	13.2	13.6	13.7	15.1	14.2	11.5	11.7	17.2	17.1	14.8	15.3	13.1	12.1	14.0	13.9
Potatoes	20.1	20.8	16.8	17.2	16.4	16.9	15.6	15.8	18.5	18.9	17.2	17.3	15.7	15.4	17.9	18.2
Other fresh vegetables	13.5	13.6	12.6	12.6	13.7	14.9	11.6	11.8	15.6	15.8	12.6	12.9	13.2	13.4	12.7	12.9
Dried fruits and vegetables	19.6	20.0	19.5	20.7	15.5	15.1	15.3	15.6	25.0	24.3	29.4	30.2	24.2	25.9	24.7	25.7
Other products of agriculture	25.0	24.2	23.8	22.2	15.0	14.8	17.0	16.7	32.5	31.5	39.4	38.9	21.3	22.4	29.9	28.5
Total	21.9	22.6	21.4	21.3	17.7	18.2	16.8	17.0	30.9	31.3	26.6	28.0	21.9	22.4	24.0	24.6
Animals and Products:																
Horses and Mules	10.7	11.1	12.3	11.8	10.5	11.0	10.7	10.5	10.7	11.4	11.7	11.6	11.8	11.8	11.3	11.3
Cattle and calves	11.1	11.3	11.4	11.5	11.2	11.3	11.1	11.0	11.5	11.6	11.7	11.7	11.4	11.4	11.5	11.6
Sheep and goats	9.0	9.3	9.2	9.7	8.8	8.7	8.2	9.5	9.6	9.6	10.3	10.2	8.1	7.7	9.8	9.8
Hogs	10.4	10.3	11.0	11.1	9.0	10.1	9.6	9.9	9.4	9.5	9.2	9.2	9.4	9.3	9.6	9.6
Fresh meats	12.4	12.6	13.1	13.4	14.7	13.8	13.2	13.1	13.4	13.4	12.5	12.6	12.4	12.4	12.9	12.9
Other packing house products	16.3	15.8	16.6	16.0	15.2	15.0	15.1	14.8	17.0	17.0	17.0	16.6	15.2	14.7	16.3	15.9
Poultry	11.2	11.3	11.7	11.4	10.5	9.9	10.4	10.3	11.4	11.1	11.4	11.2	10.8	10.8	11.2	11.0
Eggs	11.1	11.0	11.8	11.2	10.7	11.4	10.7	10.7	11.7	11.7	11.2	11.3	11.0	11.0	11.3	11.2
Butter and cheese	11.7	11.5	15.0	14.0	17.1	11.2	11.4	11.2	13.1	12.7	12.4	12.7	11.6	11.0	12.7	12.4
Wool	10.8	10.0	13.0	12.7	10.0	9.4	11.7	11.0	14.6	13.9	15.0	14.8	15.2	15.0	12.4	11.6
Hides and leather	19.8	19.3	20.0	19.9	18.7	19.6	19.7	19.9	22.7	21.8	21.8	20.5	22.0	22.7	20.5	20.0
Other animals and products	13.0	13.7	18.4	17.7	20.8	21.8	22.2	20.5	20.6	20.4	27.9	27.4	34.5	32.9	17.3	17.2
Total	12.5	12.5	13.3	13.3	11.8	12.1	11.8	11.7	11.3	11.4	11.4	11.4	11.8	11.6	11.7	11.8
Products of Mines:																
Anthracite coal	47.6	46.8	51.0	50.9	49.5	50.6	47.1	43.4	37.5	36.9	41.8	40.8	31.7	30.0	48.4	47.8
Bituminous coal	51.1	50.7	54.0	54.8	57.8	55.9	48.5	47.7	43.7	42.9	45.6	45.8	45.0	44.8	51.3	50.8
Coke	33.9	32.5	35.9	36.7	31.3	31.5	35.8	35.5	34.1	33.9	32.8	30.7	28.4	27.6	34.8	34.4
Iron ore	56.8	54.4	57.4	54.3	50.2	42.5	52.4	51.8	52.3	51.6	54.2	53.3	44.9	43.5	52.5	51.7
Other ores and concentrates	43.7	41.4	46.8	47.6	47.1	20.2	39.8	40.6	47.1	46.4	53.4	54.4	41.7	41.1	50.7	51.0
Base Bullion and matte	39.6	36.8	41.1	29.8	37.5	40.5	30.4	38.0	43.7	43.0	46.2	45.9	45.3	42.2	45.4	44.1
Clay, gravel, sand and stone	48.5	47.8	52.4	51.2	52.5	51.2	45.1	43.3	50.8	50.2	49.3	48.6	46.8	45.2	49.0	48.0
Crude Petroleum	31.3	29.3	30.5	29.0	31.1	32.7	28.4	28.8	33.1	36.2	38.7	38.6	34.0	33.7	35.8	35.8
Asphaltum	31.6	30.9	32.0	31.5	32.4	30.9	38.0	37.3	32.1	33.0	36.6	36.9	33.2	33.1	34.0	33.5
Salt	27.6	26.6	26.8	26.8	27.9	27.2	20.3	20.7	21.7	21.7	27.3	27.3	26.5	24.7	26.7	26.0
Other products of mines	34.2	32.0	36.2	38.4	40.4	40.2	42.4	43.2	30.5	33.5	51.2	47.7	38.4	35.9	42.1	41.9
Total	48.0	47.4	51.0	51.7	56.7	55.2	46.9	46.0	49.2	48.2	46.4	46.3	42.8	42.2	49.1	48.7
Products of Forests:																
Logs, posts, poles and cord wood	25.6	25.6	28.2	28.4	28.5	29.8	25.8	25.0	34.4	33.8	32.9	31.9	26.0	25.8	30.6	29.9
Ties	28.2	28.1	26.0	22.0	29.9	30.8	29.8	29.1	28.1	27.5	33.0	31.6	31.0	30.3	30.1	28.8
Pulp wood	27.0	24.6	27.6	29.0	25.9	25.8	24.4	26.2	35.0	33.5	35.6	33.8	31.8	22.1	30.4	28.5
Lumber, timber, box shooks, etc.	22.7	22.5	26.5	25.6	27.9	27.0	25.9	25.6	28.6	27.9	28.3	27.9	27.5	26.6	26.7	26.2
Other products of forests	19.0	19.4	20.3	22.0	18.2	18.9	20.6	20.2	21.0	20.5	24.4	25.0	25.6	25.2	20.6	20.9
Total	23.8	23.4	26.2	25.6	27.6	27.6	25.9	25.4	32.3	31.5	30.7	29.8	27.3	26.7	28.3	27.6
Manufactures and Miscellaneous:																
Refined petroleum and its products	27.6	27.0	26.8	26.9	27.0	26.9	27.6	27.1	28.0	27.7	28.6	28.8	28.3	28.4	27.9	27.8
Vegetable oils	22.8	23.2	24.6	23.1	27.5	27.9	29.4	29.5	25.8	27.6	29.1	28.8	29.9	29.5	27.2	26.9
Sugar, syrup, glucose and molasses	25.3	25.7	25.1	25.0	23.2	20.9	26.1	26.4	26.3	26.6	32.4	32.1	29.2	28.5	27.4	27.4
Boats and vessel supplies	12.1	19.2	29.0	25.2	19.8	16.2	17.2	13.2	12.8	12.8	12.7	18.1	8.2	14.5	19.1	14.4
Iron, pig and bloom	49.4	47.8	49.5	47.7	46.4	49.8	42.8	41.9	48.3	48.7	43.6	42.0	47.5	43.8	48.3	46.9
Rails and fastenings	39.8	38.0	40.8	41.6	38.5	30.2	40.3	40.3	43.6	43.5	39.1	37.1	39.3	40.3	41.5	41.2
Bar and sheet iron, struct. iron and pipe ..	31.8	32.7	33.2	32.0	30.2	31.6	25.4	25.7	38.0	37.9	30.7	29.9	32.0	30.8	32.7	32.4
Other metals, P. B. & S.	31.6	31.2	40.0	38.6	40.5	38.4	30.6	29.8	34.9	33.6	35.1	35.5	37.5	37.6	36.3	35.6
Castings, machinery and boilers	19.7	18.9	22.1	21.9	20.7	19.5	18.2	17.7	19.6	19.2	19.1	18.2	19.9	18.4	20.3	19.6
Cement	38.5	38.3	37.9	37.9	35.9	35.6	36.8	36.1	38.1	38.3	39.7	38.6	35.7	34.0	38.1	37.7
Brick and artificial stone	35.0	34.3	37.8	36.1	36.2	35.8	32.5	31.5	34.0	33.1	34.9	34.5	34.5	34.2	35.2	34.3
Lime and plaster	28.4	27.1	25.5	25.4	25.1	23.9	22.9	22.4	23.5	23.0	28.7	28.6	26.1	24.7	26.4	25.6
Sewer pipe and drain tile	19.7	20.0	18.1	18.6	19.9	20.4	17.4	17.3	19.0	18.9	19.4	18.5	16.4	16.1	18.5	18.5
Agricultural implements and vehicles	14.5	13.9	14.9	15.0	15.9	16.5	15.9	15.7	14.3	13.7	14.5	14.4	15.1	15.5	14.7	14.4
Automobiles and automobile trucks	8.9	8.4	8.0	8.1	6.2	6.0	6.5	7.0	6.6	6.6	6.4	6.5	6.9	7.7	8.2	8.0
Household goods and second hand furniture ..	7.8	7.8	8.6	8.8	7.7	9.7	9.1	9.1	11.1	11.0	10.4	10.4	10.4	10.4	9.8	9.9
Furniture (new)	8.3	8.5	9.5	9.8	7.6	8.9	8.0	8.1	10.5	10.6	9.9	9.9	9.3	9.2	9.0	9.1
Beverages	18.9	19.5	19.2	18.6	20.0	19.0	17.4	17.8	18.1	18.5	19.6	19.3	16.8	16.2	18.6	18.8
Ice	29.6	29.7	28.2	27.6	19.1	19.4	15.3	14.8	31.8	31.6	23.5	23.9	18.1	18.1	25.7	25.6
Fertilizers (all kinds)	23.7	23.1	23.4	23.3	21.9	21.5	22.9	21.7	25.3	26.2	26.1	25.6	24.5	23.0	23.3	22.6
Paper, paper matter and books	24.3	23.8	23.1	21.9	25.6	24.1	20.1	19.8	25.4	24.9	22.3	22.1	24.9	23.3	24.1	23.6
Chemicals and explosives	29.0	28.7	30.5	29.6	30.7	30.1	31.9	31.5	30							

Shop Councils Develop Practical Co-operation

Plan of the Union Pacific System Meets with the Approval
of Officers and Men Alike



Monthly Shop Council Held at the Omaha, Neb., Shops, of the Union Pacific, April 15, 1924

Following the *Railway Age's* announcement of the contest on co-operation, an account of the formal establishment of shop councils on the Union Pacific System was published in the *Bulletin of the Shop Employees' Association* of that system. Prior to the close of the contest, a number of contributions were received from representatives of the shop employees commenting on the advantages and workings of the shop councils. Letters were also received from a number of mechanical department officers of the Union Pacific System, setting forth their opinions of the scheme. The article which follows has drawn on all these sources for its information and, while not in itself a contribution to the co-operation contest, the plan it describes is a valuable contribution to the practical solution of the co-operation problem.

FOLLOWING THE SHOP CRAFTS' strike during the summer of 1922, there was organized the Shop Employees' Association—Union Pacific System. As the result of negotiations between the representatives of this organization and the management, a shop agreement was adopted, effective September 1, 1922. The outstanding features of this agreement, so far as they affect wages and working conditions, were described in these columns shortly after the agreement was adopted.* They are essentially a reclassification of the employees within each craft into a number of groups, the rates of pay for which varied from somewhat below, to considerably above the flat rates at that time established by the United States Railroad Labor Board, with specific definitions of the jobs belonging in each group and a provision for the adjustment of the bulletined hours of regular employment by agreement between the local managements and representatives of the employees for the purpose of increasing or reducing expenses with as little disturbance to the regularity of employment as possible.

In addition to the questions in which the rights of em-

ployees were involved, the agreement also outlined a broad basis for co-operation between employees individually and the management by the following provisions of Section 7, in the general rules of the agreement:

To the end that the employees may receive the full benefit of co-operation with the company and that both parties to this agreement may equally profit thereby, each individual member of this association is to feel and understand that it is not only his duty to himself and his fellow employees and the company, but his privilege to call the attention of his Local Committee to:

(a) A suggested change in location of machinery or equipment or of any other shop appliances or of added protection thereon which might result in a greater degree of safety to the employees or of increase in efficiency or economy in operation.

(b) To the general surroundings which might be so arranged as to lead to more healthful surroundings or to greater degree of comfort to employees, and

(c) In a general way to any question or factor which, as the individual views the situation, may be so handled as to result in the mutual advantage of employees and company.

The local committee will investigate each such matter to which their attention is called and, if in their judgment it is meritorious, they will handle with the proper official or officials who will give careful consideration thereto, and should it be decided that action is justified, it shall be done. A record will be made of all matters handled to a conclusion, including the action taken, a report thereon made through the general manager's office to the System Board of Adjustment, and proper reference will be made thereto in the board's annual report.

How the Shop Council Developed

To realize the purpose of these broad provisions it became necessary after a few months to inaugurate a program of regular meetings at local shop points of the accredited representatives of the Employees' Association and the local management. The interest manifested in these meetings indicated that this was the ideal method of carrying out the intent of this phase of the agreement. The result of the meetings has proved highly satisfactory both to the management and to the employees and a further development of the plan has been agreed upon by which the holding of the meetings and the regular order of business to be considered by them has been systematized and made to apply uniformly at all points

* See the *Railway Age* for September 30, 1922, page 603.

on the system where a sufficient number of men is employed. This in effect standardizes the practices which were developed during the first year and a half of operation of the plan and establishes the so-called shop councils on a firm basis. The provisions of this agreement are as follows:

1. The meetings shall hereafter be known as shop councils.
2. Shop Councils shall be held once a month at each shop where not less than 50 employees represented by the Shop Employees' Association are regularly employed, provided that, where in the judgment of the superintendent of motive power, meetings should be held at points having a less number of men than 50, he be authorized to arrange such meetings.
3. The shop council shall be held on date of each month, and shall begin at hour mutually arranged by the chief supervising officer and the local chairman of the association at that point. The date and hour should be so fixed that Shop Councils thereafter may be held on the same date and hour insofar as practicable.
Where date for shop council falls on a holiday, the following day shall be substituted.
4. The chief supervising officer, or designated representative at each shop or point, shall attend each meeting of shop council. The supervising officer will make necessary arrangements to the end that the maximum number of his subordinate officers will be in attendance at each meeting.
5. All local committeemen who are employed on shift during which the shop council is held, shall attend each meeting unless one or more of the committeemen are at that time employed on work which they cannot leave. No deduction in time will be made for committeemen on account of attending the shop council. Local committeemen employed on other shifts should attend shop council meetings, but the attendance of such committeemen will be without expense to the company.
6. Officers other than those included in the above paragraph 4, and employees other than those included in the above paragraph 5, may attend meeting of the shop council.
7. At each meeting of the shop council held subsequent to the first meeting held under these rules, the chairman for the next meeting shall be selected. The chairmanship shall alternate from meeting to meeting between one of the officers and one of the committeemen.
8. Minutes shall be kept of the proceedings at each meeting and will be signed by the chairman and secretary of that meeting. The minutes shall show:
 - (a) Place and date shop council was held.
 - (b) Names of those attending:
 - (1) Officers and official title.
 - (2) Committeemen and craft or class of each.
 - (3) Others present.
 - (c) Subjects discussed and action taken.
9. The order of business at each meeting shall be as follows:
 - (a) Reading of minutes of preceding meeting, showing action taken thereon.
 - (b) Suggestions that may lead to safer practices or more comfortable or more healthful surroundings.
 - (c) Suggestions that may lead to greater economies in operation or to increased efficiency.
 - (d) Differences of opinion arising under the application of the agreement that have been handled up to, but not inclusive of the officer in charge at that point, provided the local chairman of the craft or class of employees affected has filed notice of appeal on the question which he desires to have handled with said officer at least three days prior to date meeting is held.
 - (e) Shop problems of local management.
 - (f) Other new business.
 - (g) Unfinished business.
 - (h) Discussion of questions or matters in which the employees and the management are mutually interested.

Under the latter caption it is suggested that an address be given, or a paper read by one of the officers or one of the committeemen on any subject which is of mutual interest. Not to exceed 15 min. to be consumed for this purpose, and then to be followed by not to exceed 10 min. discussion of the subject matter thereof. It is further suggested that at each meeting the chairman designate the one who is to prepare the address or paper for the next meeting.

The following subjects are suggested in carrying out the provisions of caption (h):

 - (a) Safety measures.
 - (b) Constructive measures that may lend a tendency to make daily work more pleasant.
 - (c) Constructive measures that may lend a tendency to encourage a greater degree of confidence among employees and their supervising officers.
 - (d) Output.
 - (e) Efficiency.
 - (f) Loyalty.
 - (g) Conservation of time and material.
 - (h) Relations as between the management and the association.

It is further suggested that from time to time association officers and railroad officers higher in rank than those regularly attending the shop council be invited to attend and address the council; also that prominent local citizens be occasionally invited to address the shop council.

- 10. Copies of minutes of the shop council will be distributed in accordance with instructions of superintendent of motive power and machinery, except that the secretary of council will forward copies direct to the secretary of the system board of adjustment and to the secretary of the lodge having jurisdiction over the employees at the particular shop or point involved.
- 11. The minutes of the shop council should be read under the head of Order of Business No. 14, "Debate—Good of the Association," at the first subsequent meeting of the lodge after receipt. Lodge members should discuss these minutes with a view of bringing to the attention of the local committeemen such matters as they believe should be the subject of further consideration at the next shop council.
- 12. Not to exceed 2 hr. 30 min. are to be consumed in each shop

council meeting. In order to assist the council secretary in securing necessary information in order to comply with provisions of Section 8 (b), those in attendance will fill out a slip with necessary information thereon, and hand same to the council secretary at the close of the meeting.

Based on the minutes of the meeting, the proper supervising officer may apply corrective measures, or issue such instructions from time to time as he may deem necessary and within his province.

It is to be understood that questions usually discussed at official foremen's meetings will be handled under Section 9 (d) and that such meeting will be considered as the foremen's meeting for that week.

In announcing the formal establishment of the Shop Councils in the February, 1924, bulletin, published by the Shop Employees' Association—Union Pacific Systems, C. E. Anderson, president of the system association, made the following comment:

"From the foregoing, it is plain to be seen that the Union Pacific System is enlarging on a work that, without question, has at least been a contributing element in bringing about a better relationship and understanding between the management and all of its employees.

"This enlargement means added and special opportunities, to the committeemen and others who may and should attend, to develop in a way that has never been possible before; and for that purpose I wish to draw the attention of our readers to several of the preceding paragraphs.

"Paragraph 5 of the instructions states that all committeemen available on that shift shall attend and that there will be no deduction in their time for such attendance. This means an added expense to the management, but is done to help cement that feeling of confidence between management and men that has existed for one and one-half years and to strengthen the feeling of joint responsibility in keeping the wheels of this great institution, the Union Pacific System, rolling efficiently in the interest of the public.

"You will note that committeemen on other shifts are invited to sit in on their own time. This opportunity should be taken advantage of as far as it is physically possible to do so, inasmuch as the individual will be benefited as well as the association.

"Paragraph 7 calls for the alternation of the chairmanship of the Shop Council. Before a child can run, it must first walk; and the arrangement referred to is going to be the opportunity for a man to begin walking in another line of work, that of presiding over a meeting.

"Paragraph 9 (d) gives special opportunity to have an open discussion of questions in dispute that have been appealed to the highest authority at the place so as to get the best and clearest understanding possible of the vital points involved and, therefore, the real merits of the case. And to the end that no time be wasted in useless discussion, I will ask all of our men to study and know our agreement.

"Paragraph 9 (h) gives exceptional opportunity to men to develop their powers of reasoning and speech, and by applying themselves to the study of some subject that is to be presented they will be benefited to an extent that is little dreamed of at present.

"To my mind the chance to develop mentally and morally far exceeds in importance that of monetary advantage, though it is true that the advance in dollars and cents that accrues to the working man by collective action instead of personal ability is very appealing.

"Paragraph 11 is a suggestion that it is hoped will be made use of to a very great extent, because by giving publicity to the doings of the committeemen in the shop councils, the lodge members will also be in a position to benefit thereby."

How the Plan Works

Expressions of opinions by representatives of the employees as well as by mechanical department officers from the various parts of the Union Pacific System all indicate that the working of the Shop Council plan has been highly satisfactory both from the standpoint of the management and the shopmen. There is also evident in these expressions a feeling of relief that distrust and antagonism has been replaced by mutual confidence, and a disposition to face the future with

a reasonable hope that these satisfactory relations may be further developed with increasing mutual advantage.

The following paragraphs from the letter of one of the officers are typical of the opinions expressed by the others.

"Considerable benefit has been derived by both the employer and the employee. The workmen make suggestions appertaining to the installation of machines, shop practices, etc., of a very beneficial nature, having a tendency to promote efficiency, increase output, conserve labor and material, and make more desirable and safer working conditions. It is a fact that in many instances workmen performing jobs and operating machines devise and see changes which can be made in the machines or the methods of performing the work, which were heretofore discussed by the workmen without the knowledge of the supervisor and, consequently, the benefits of their thoughts went for naught. The Shop Councils provide means of free expression where the local supervisors and the workmen meet on a common basis and their expressed opinions are received with due consideration and respectful attention, consequently members of the councils are ever on the watch for points tending toward more efficient operation of the railroad and better working conditions. The feeling of skepticism and mistrust so apparent on both sides under the old order of things has been practically eliminated and today the most congenial manner of handling matters is the one selected.

"The Shop Councils have been the means of clearing up misunderstandings and bringing about closer co-operation between the supervisors and their men through developing and encouraging a spirit of fairness in their thoughts and actions in the performance of their respective duties. This is, in my opinion, the secret to successful co-operation, and our

shop councils have tended, since their inception, to encourage all employees to give kindly consideration and sympathetic thought toward the other fellows' difficulties and troubles, and as the object of these councils becomes better understood by reason of being in effect over a greater period of time, their influence is bound to become more powerful in eliminating misunderstandings and complaints. In due time by their inculcation and up-building of mutual confidence they will accomplish in fact that desirable condition much talked of and seldom realized: viz., whole-hearted co-operation. The improvements which have been and are being obtained through the Union Pacific's policy of labor administration are so gratifying to the management and the employees as to leave no question of the ultimate success of this plan."

How the men feel about the working of the shop councils is perhaps best set forth in the following quotation from a representative of the employees:

"When we first began these meetings some of the suggestions that were made by the men were smiled at, but since we began these discussions we feel more and more at liberty to bring up new ideas. We have found that when we talk these different ideas over, there is a lot of merit to a great many of them. We also find that since the Shop Employees' Association on the Union Pacific System has been in operation that we find a better feeling between the men, the supervisors and the officers than ever before. We are also coming to think that we should have the good will of our supervisors, and they are all of the same opinion, if we expect to gain any good results.

"We also feel that if we continue as we have done in the last 20 months, strikes on the Union Pacific will be a thing of the past."

How Simplified Practice Will Benefit Railways

Eliminating Waste in Distribution and Consumption Will Result in Greater Operating Efficiency

By Ray M. Hudson

Division of Simplified Practice, U. S. Department of Commerce

WHAT SPECIFIC MEASURES will enable the railroads to secure greater net operating income? One answer lies in greater efficiency in operation. A number of industries which have solved similar problems have found an effective ally in simplified practice—waste elimination.

Simplified Practice is not a theory. In the two years since Secretary of Commerce Hoover initiated a division of the Department of Commerce devoted to the elimination of waste, it has meant to many industries the difference between mere existence and a profitable development of business.

Simplified Practice means lowering the price to the consumer through the economies wrought in production, distribution, and consumption by reducing the varieties in sizes and dimensions of commonly used commodities. It means ridding ourselves of the huge burdens of idle stocks, idle investment and heavy carrying charges for superfluous varieties. Unnecessary because seldom called for, little used, yet made and sold because some manufacturer or some customer feels that wide variety and extreme diversity is essential to his immediate success. "Quantity creates income—variety creates expense," is a modern industrial axiom; but the ultimate consumer has yet to learn that he pays all the expense entailed in needless duplication even if he never buys one one-thousandth of the variety offered him.

Next to the farmers, the railroads are the nation's greatest

consumers. They spent over a billion dollars for equipment and additions to roadway and structures in 1923. Another billion and a quarter went out for materials and supplies other than fuel. Railway purchases are a powerful factor in maintaining prosperity for the rest of the country. Simplified practice will help to make railroad purchases contribute more to railroad prosperity.

One of the leading roads decided that 223 kinds of paints and varnishes would meet its needs adequately, instead of the 287 formerly specified while 64 sizes and shapes of fire brick served its purposes as well or better than the 145 formerly purchased. It simplified its total list of stores from over 140,000 to 78,000 items, a reduction of 44 per cent. One of the large railway supply houses offered 600 sizes and kinds of shovels, scoops, and spades in its catalog but this road found 19 sizes and styles were ample for its purposes. Nevertheless that road, and many others, paid in the unit purchase price for those 19 kinds a certain tax arising out of the losses sustained by the vendor for the slow-moving, or dead, varieties in the remaining 581.

Another large road cut out over 20,000 different items formerly called for in its material or supply list, while the purchasing agent for another large system says, "The real meaning of simplification has not yet been felt. It is not a reform, it is merely getting back to original sound prin-

ciples of economics." Needless to say, he is consistently applying it in his daily task of buying the thousand and one commodities necessary to keep the wheels turning on his road.

Along the same lines the purchasing agents of 40 railway systems, practicing simplification to a certain extent, were able to reduce their stores investment \$180,000,000 in six months. In addition, there was a saving of approximately 25 per cent in the indirect expense for storage facilities, interest, insurance, taxes, transportation of supplies, their handling, distribution, depreciation and obsolescence. It is not possible that this \$180,000,000 simplification accounts for the larger part of the difference between the actual earnings of \$776,665,960 for 1922 and the \$977,657,368 for 1923?

Reducing this result to financing in other directions, this sum will be seen to represent the interest at $5\frac{3}{4}$ on over \$3,000,000,000, or the "tentative valuation." With the financial problem of preparing to extend their equipment to meet the increasing traffic problem, the value of Simplified Practice is obvious.

Everything, from the smallest bolt stocked to the largest power unit, costs the management money, not only for its purchase but for its preservation. The cost of preservation is not alone interest on investment; it often costs more for the space occupied than it does for the parts themselves. A prominent New York bank estimated that delays in turnover cost American business over \$11,500,000 a day for interest in 1920. Though delays in shipments, and delays in collections caused a portion of this cost, the larger part represented the cost of capital invested in excessive stocks, and "slow-moving" goods. Obsolescence is practically one-half the "cost-to-carry" in stocks of fairly staple goods; it is much more for specialties. The era of detail variations for individuality's sake is rapidly passing, but the curse of a multitude of variations in sizes, dimensions, finishes, etc., in commonly used items hangs over us to an astounding degree.

Simplified practice, the elimination of superfluous variety, is not standardization. It may be the forerunner of standardization, and facilitate its accomplishment. There is a real opportunity, through simplification, to decrease stocks, quicken turnover, and lower cost by concentrating production and purchasing on a minimum variety of articles. A manufacturer of lock washers says, "We are forced to make 12 distinct weights in one type of washer for a $\frac{7}{8}$ -in. bolt."

When the paving brick manufacturers were barely able to make ends meet, they sought relief through increased prices for their products; higher individual and plant efficiency, and through efforts to secure lower taxes. Not until these men eliminated 80 per cent of the 66 different varieties of bricks they were then making, were they able to increase the net income of their industry. By concentrating production, sale, and use of their products on the 11 proven best sellers in the line, costs were reduced until paving bricks again entered into competition with other kinds of roadbuilding materials. The production costs, overhead, and marketing expense of the slow-moving 55 sizes and styles had more than absorbed the profits on the 11 active lines. The increased volume of business and greater earnings resulting encouraged the industry to cut the line to the six now in use, the "cream of the business."

Simplified practice clears the way for that concentration which is essential to the development of standards. It is a measure that can be applied with immediate advantage, and with accruing benefit, throughout the usually long evolutionary period required in developing "standards."

Secretary Hoover has established the Division of Simplified Practice in the Department of Commerce to serve as a centralizing agency in bringing producers, distributors and consumers together, and to support the recommendations of these interests when they shall mutually agree upon simpli-

fications of benefit to all concerned. There is nothing in our program that savors of interference, restriction, regulation or control. We cannot and do not initiate action. We have no powers of compulsion, and are not a "policing" unit, but the usefulness of our co-operative service has been demonstrated in over 20 different industries.

In the lumber industry, where simplification of grading standards has been under consideration for years past, great progress has been made through the recent elimination of unnecessary and often wasteful variations. The reduction of nearly 60 per cent of the number of finished "yard lumber" sizes, and the fixing of definitions of basic grades are estimated to save for the industry and the public, part at least of the present waste of \$250,000,000 annually. This is one example of the service rendered by the division. We do not consider our job done merely with the announcement of the "simplified" line. Instead, we keep on until we have the signed pledge of 80 per cent of the producers to concentrate their efforts on the recommended sizes, then we publish the recommendations with the list of their endorsers in our Elimination of Waste Series. The wide-spread distribution of these helps to insure purchases being made in accord therewith.

The success of these recommendations is often attributed to the effort which the division makes to put these simplified practice recommendations into effect. It conceives it a part of its duty not only to assist in developing the recommendations, but also to help assure their nation-wide adoption and use. It is this feature which distinguishes the work of this organization from that of other bodies in the field. Thus the division is in a position to render additional service to these other bodies by assisting such groups to secure more general recognition for the simplifications and standardizations they have achieved.

Opportunities for Railways

Considering the present variety in rail sections, designs of rail joints, tie plates, friction draft gear, grate-shaker bars, and innumerable other items peculiar to the railway field, there are no doubt opportunities for benefiting immediately through simplification, while waiting for the necessarily slow development of standards. Nevertheless, we recognize the skepticism with which the railroads have viewed many government activities, and we certainly do not want to add one straw to their burdens. If there is a chance to serve the roads through the facilities at our disposal in the solution of some of their problems, and to help the carriers gain certain advantages, benefits or economies which they cannot obtain alone, then we would welcome the opportunity. We fully appreciate the great effort the roads are making to rehabilitate themselves, render maximum service and reduce waste in operation. The faith and persistence shown by the executives in these efforts command high admiration and respect. If simplified practice can help them, we are ready to go forward with them.

Applying simplified practice to all kinds of commodities means economies in their production, sale and use, which in turn decrease the cost of living and permit our advancing standard of living. The coincident increase in purchasing power of the consumer's dollar means more people will be able to buy more of this world's goods. In the drive for more business which the roads are undertaking as part of their 1924 program, the stimulation of mass-production by applying simplified practice to more and more commodities should not be overlooked. The carriers stand to gain in two ways through this general effort to eliminate the waste of excessive variety; directly, through the great savings possible in their purchases, and indirectly, through the increase in traffic caused by the greater demand for goods as public buying power is strengthened. We therefore respectfully recommend the wider application of simplified practice.

I. C. C. Declines to Reduce Grain Rates

Find Rates Not Unreasonable and Western Roads Not Making Fair Return

WASHINGTON, D. C.

THE INTERSTATE COMMERCE COMMISSION for the second time has declined to order further reductions in the rates on grain, grain products and hay in the western district which were asked by the Kansas and other western state commissions and various farm organizations. In a decision signed by six commissioners, five dissenting, the commission has discontinued the general investigation, No. 15,263, instituted on its own motion into the rates on those commodities, and has dismissed the complaint in No. 14,393, the Kansas case, involving only the western rates, in which in a decision on October 11, 1923, it declined to reduce the rates but ordered a reopening of the case for further hearing in connection with its general investigation.

Upon the record, and applying the usual tests, the commission finds that the general basis of rates for the transportation of grain, grain products, and hay in interstate or foreign commerce does not appear to be unreasonable or otherwise in violation of the interstate commerce act. Whether or not expenditures for maintenance of equipment in 1923 were to some extent abnormal, it finds the conclusion not warranted that the earnings of carriers in the western district were in excess of a fair return. It also decides that the record necessitates no change in the basis of approximate value for rate-making purposes in the western district adopted by the commission in 1920 and reviewed in 1922, which was challenged by the complainants.

The condition of the agricultural industry, which was so strongly urged by the complainants as a reason for reducing the rates, was carefully reviewed by the commission in its report but the commission not only finds an improvement in that condition but also that the part of freight rates in the present economic condition of agriculture has been over-emphasized, and that to assist agriculture at the expense of transportation when neither industry is in an ideally prosperous condition would be of doubtful value.

The complainants in the Kansas case had asked not only that the remainder of the increases authorized by the commission in Ex Parte 74 be removed throughout the western group, but also that existing differentials between wheat and coarse grains be maintained. The commission says this would mean a reduction in present rates of over 14 per cent and that it was estimated in the previous report that this would take in revenue from the western roads approximately \$17,000,000 to \$20,000,000 annually. In another place it is pointed out that the rates thus asked would be lower in the aggregate than those established by Director General McAdoo on June 25, 1918, notwithstanding that the expenses of the carriers have greatly increased.

The majority opinion, dated July 10 and made public on July 17, is signed by Commissioner Aitchison, Commissioner Potter wrote a concurring opinion which Commissioner Cox also signed, while Commissioners Campbell, Eastman, Lewis, McChord and McManamy dissented. The summary and conclusions of the majority report are as follows:

Summary and Conclusions

We may summarize the situation as developed of record. So far as relates to the western group, it appears:

(a) That rates on grain, grain products, and hay, generally speaking, are now on a somewhat lower basis compared with pre-war freight rates than are the carload rates on other traffic.

(b) That the earnings per car, per car-mile, and per ton-mile

on grain and grain products, compared with other classes of traffic and with all carload traffic, do not show that grain and its products are now contributing more than their fair share to the revenues of the carriers in this group, considering the value of the traffic, the average hauls, the relative services performed, and the ratio of revenue produced by grain and grain products to total carload revenue compared with former years.

(c) That there has been an increase in the average loading of grain and its products in recent years as well as in the average loading of all carload traffic, although not to the same extent in the case of all carload traffic. This factor was given weight in *Rates on Grain, Grain Products, and Hay, supra*, wherein we required reductions to be made in the rates for the transportation of these commodities.

(d) That there has been slow but progressive improvement in the economic condition of agriculture in the western group since 1921, though the improvement in grain-raising areas is less than with respect to other classes of agriculture.

(e) That the present adjustment of rates on grain and its products from the "element of value" standpoint, compared with the other heavy-loading commodities moving in volume, pointed to by complainants, as profiting by the disturbance in relative values, is not unfavorable to grain and grain products.

(f) That despite a peak year in 1923 from the standpoint of traffic handled, it does not appear that respondents made a fair return, after giving due consideration to the complainants' contentions as to abnormal expenditures for maintenance of equipment, and to the aggregate valuation.

(g) That we have no assurances on this record that there will be such further increases in tonnage or such reductions in operating expenses in the immediate future as to enable respondents to earn an excess over a fair return. Any further reduction in revenue would increase the shortage in the fair return of carriers in the western group.

(h) That large additions to capital must continually be made by carriers in this group for needed additions and betterments, which cannot be done if the credit of the carriers is seriously affected by undue impairment of their net revenues from operation.

(i) That the benefit which would accrue to the average farmer in case of a reduction in rates is small compared with the aggregate disastrous effect on certain of respondents' revenues and on their credit, and there is serious doubt whether farmers would not in many instances lose from impaired railroad service more than they could possibly gain from a reduction in rates, even if the farmers would get the entire benefit of any reduction made.

No extended summary with reference to the other groups appears necessary. Generally speaking, economic conditions in all these groups are better in 1923 than in the prior years. Moreover, with the exception of certain parts of the territory embraced in the mountain-Pacific group, no reductions are asked, and in the southern group it appears reductions of grain rates would have an unfavorable effect on agriculture generally.

In reaching our conclusion we are mindful of the opinions held by many that there should be a general revision of the rate structure of the country to give basic commodities more consideration. All we here decide is that under the facts and conditions shown by this record and viewing the present structure as a whole, the existing rates on grain, grain prod-

ucts, and hay are not unreasonable when the usual tests are applied.

For the sake of clarity we add that our conclusion is not based upon the sole ground that the carriers as a whole in the western district are not making their fair return. That is only one of the considerations. Still less do we consider that when the rates assailed are shown to be unreasonable the commission's hands are bound so tightly by the provisions of section 15a of the interstate commerce act that we can not grant any general reduction of the nature before us unless and until the interested carriers as a whole in their respective groups make a fair return.

The present rate structure is largely the result of commercial and transportation conditions, and under it the trade and commerce of the country have grown up. Any material disturbance therein will have a tendency to cause disruption of business conditions generally to the detriment of an orderly conduct of commerce and with possibly serious effects upon large sums of invested capital and upon the steady employment of labor. Any marked readjustment might mean the moving of industries from points now near the source of supply of raw materials to points farther distant. A revision involves an undertaking of magnitude and requires a large expenditure of funds not at present at our disposal. Many of the rates here assailed were prescribed by us, and, over a long period of time, we have been constantly engaged in readjusting and prescribing rate schedules on these and many other commodities. Since the act to regulate commerce was enacted, and probably during a much longer time, traffic conditions and commercial conditions have been adjusting themselves to the existing relation of rates. It is not enough that the present conditions may not be ideal; it must appear that something better is attainable.

Upon all the facts of record we find that the general basis of rates, charges, regulations, and practices of carriers subject to the interstate commerce act for the transportation of grain, grain products, and hay in interstate or foreign commerce, brought in issue in these proceedings, are not unreasonable or otherwise unlawful. The complaint in No. 14393 will be dismissed, and the investigation in No. 15263 discontinued. We will enter orders to that effect.

A large part of the report, which with the dissenting opinions occupies 80 pages, is taken up with an analysis and correction of complainants' exhibits which were compiled to show the alleged overvaluation of the property of the western carriers and the alleged excess expenditures for maintenance of equipment, but after making the corrections indicated as necessary the report says "it is apparent that even accepting the complainants' figures as to net income for the nine months' period, and assuming the soundness of their contention as to excess valuation and excess maintenance charges during the year, the return was below that found by us to be reasonable and any further reduction in revenue would increase the shortage in the fair return of the carriers in the western group." The commission also indicates an opinion that the information on which it based its tentative valuation was much more comprehensive and accurate than that used by the complainants and after reviewing the evidence submitted on the question of value says that nothing of record leads it to conclude that the basis of approximate value in the western district should be changed. "A 5.75 per cent return on the value adopted in 1920 would amount to \$465,750 on an annual basis, as compared with the approximate actual return in 1923 of \$380,704,000, or at the rate of 4.7 per cent," it says. "If allowance be made for the excess maintenance urged by complainants the return for 1923 would become 5.36 per cent, still less than a fair return. Moreover this return takes no account of additions and betterments since December 31, 1919." The complainants had computed the amount of the "abnormal" expenditure for maintenance of equipment in 1923 at \$80,883,791 and had insisted that

two-thirds of this should be eliminated from the expenditures for 1923 and added to net income before computing the rate of return. They had also arrived at a figure of \$6,895,149,864 for the value of the western roads as of December 31, 1919, against the figure of \$8,100,000,000 used by the commission, by making various adjustments on the basis of the relation between the tentative valuations of 151 roads, including only 19 Class I roads, and their property investment accounts.

Extracts from the majority report and from the separate opinions of Commissioners Potter and Lewis are as follows:

Western Group

Generally stated, the rates on wheat and its products, as well as hay, in this group are now 117.5 per cent, the rates on coarse grains 105.75 per cent, and the rates on all other commodities 121.5 per cent of the corresponding rates in effect at the end of federal control. Compared with the pre-war period, the rates on wheat, its products, and coarse grains are now generally about 45 per cent above the rates then in effect. In reaching this percentage we have given consideration to the 6-cent maximum increase made under General Order No. 28. The rates on hay are about 47 per cent above the pre-war level. Rates on other commodities stand on a level 52 per cent higher than pre-war. The last-named figure would be affected slightly by such reductions in rates on individual commodities as have occurred since the general reductions of 1922.

Alleged Overvaluation in Western District

Complainants in the *Kansas case* urge that "reductions in rates on grain applicable in the western group are in harmony with the purpose of section 15a of the transportation act when certain abnormal expenditures of the year 1923 are considered and the true net earnings of that period are applied to the fair value of property of carriers in the western group." A basic consideration, therefore, is the fair value of the property of carriers in the western group.

Merely correcting the value assumed in the "modified exhibit" set out in the complainants' brief, by substituting \$7,099,638,388 for \$6,895,149,864 and adding \$700,000,000, additions and betterments since December 31, 1919, the "value for rate-making purposes as of December 31, 1923" becomes \$7,799,638,388. A return of 5.75 per cent on the latter amount is \$448,479,207, on an annual basis. For the first nine months of the year, taken at 68.9 per cent of year's income, \$309,002,174 should be earned to accord the return on the value named at the annual rate of 5.75 per cent. The "net return for nine months" was \$245,545,800, or at the annual rate of 4.56 per cent. If "two-thirds of excess maintenance charges against nine months' operation, year 1923, \$53,922,526," is taken into account as a part of the true net return for the nine months' period, as claimed by the complainants, so that the true return for the nine months was \$299,468,326, the rate of return on value as of December 31, 1923, becomes 5.57 per cent per annum, instead of 5.72 per cent, as claimed in the "modified exhibit."

As shown by the monthly reports the net railway operating income of the Class I roads for the western district was \$374,461,384 in 1923. Based on past experience, it is not far amiss to assume that the net railway operating income of the Class I roads will be 98.36 per cent of the total for all roads in the district. Making this assumption, the total net railway operating income of the roads in that district in 1923 may be taken as approximately \$380,704,000, equivalent to 4.88 per cent on the value submitted by complainants, as revised. As the alleged excess maintenance charged amounts to \$80,883,791, two-thirds of which complainants claim should be amortized over the following two years, the return shown would be increased by 0.69 per cent, giving a return of 5.47 per cent for the entire year 1923 if the claim of the complainants in this regard should be accepted in full.

In *Reduced Rates, 1922, supra*, we reexamined our available valuation information, and made an attempt to utilize the results of our investigation under section 19a of the act in so far as deemed by us to be available, as directed in terms by section 15a.

While in 1922 the work of valuation was still incomplete, the results were much more informative and dependable as showing aggregates and general tendencies than when we made our former determination. This is because a far greater amount of basic material was at hand from which deductions could be made as to the whole.

The results obtained by a study of the available information procured under section 19a of the act were brought to a common date by appropriate consideration of increments or reductions in investment due to extensions or new lines, additions and betterments, retirements, changes in depreciation reserves, and in working capital, including materials and supplies. Our general conclusions in *Reduced Rates, 1922, supra*, have already been quoted. Briefly they were that, except as such readjustments were indicated to be

necessary, we there found no reason to disturb the value previously taken in *Increased Rates, 1920, supra*, as approximating the sums there stated.

While numerically not as many roads of all classes were studied by us in 1922 as were employed in compiling complainants' exhibit, many more representative important carriers were included. Roughly, for every 100 miles of Class I roads represented in complainants' exhibit, our study in *Reduced Rates, 1922, supra*, covered the same mileage and 135 miles in addition. Multiple-track carriers were not as fully represented in either study as those of relatively more simple characteristics.

We had before us other matters which could not be touched upon or given weight in complainants' exhibit, such as the corrections which had been made by us in the investment accounts, the amount of accrued depreciation as carried on the books of the carriers, the actual amounts of working capital on hand, including materials and supplies, the capitalization of standard return or compensation, the amounts of stocks and bonds outstanding, and estimates of the market value of portions thereof.

As between these two estimates the one based upon a larger proportion of the important individual roads in the class is more likely to be accurate, both because a wider selection tends to a more accurate ratio or average, and because the uncertain portion, to which the ratio or average is applied, is correspondingly lessened.

The following independent test may be of interest. In 1923 our Bureau of Statistics brought down to the close of 1922 the various tentative valuations from the date as of which made in each case, including materials and supplies and cash on hand reported by the carrier as working capital. In the western district, which includes the western group and mountain-Pacific group, there were 22 Class I roads so treated. Their average value per mile operated, less trackage rights, was found to be \$54,573 on December 31, 1922. This includes equipment. Applied to the mileage for the western district the value became \$6,951,115,373. Adding 7 per cent to cover roads of Class II and Class III, and switching and terminal companies, it produces \$7,437,000,000. The average net railway operating income of the 22 roads in 1922 was \$1,925 per mile, while the average for all the Class I roads in the western district was \$2,494. Obviously, the machine which produces the latter average is likely to have a greater physical content and be more valuable than the plant which produces the former and lesser figure. This indicates that remaining valuations should increase rather than the figure thus derived.

Alleged Excess Expenditures for Maintenance of Equipment

That there was a greater expenditure for maintenance of equipment during 1923 than in other years is shown by the record. The increase in 1923 over the years 1918 to 1922, inclusive, however, is not nearly so great as that over the test-period years. During the five-year period, 1918 to 1922, the lowest maintenance of equipment ratio was 25.37 per cent, and the highest 26.66 per cent, as compared with a ratio of 28.47 per cent in 1923, and an average of 23.08 per cent as computed by complainants for the first eight months of the test-period years. There have been large reductions in the number of bad-order locomotives and cars in the past year, and obviously this is one of the main causes of the increased expenditures in 1923. Some of the deferred maintenance doubtless resulted from the shopmen's strike of 1922. It is difficult to determine the extent of the excess expenditures in 1923, since for a normal standard of comparison we must resort to the test period of other pre-war years, and many factors involved in the maintenance cost have subsequently undergone material change. Among the principal things which have thus affected the cost of equipment repairs in recent years, the following may be mentioned: Growth of traffic, which has necessitated an increase in the number of equipment units of all classes and which must be maintained in lean years as well as good; increased size and capacity of locomotives and cars; heavier loading of cars; improved character of construction due to greater use of steel; extended use of superheaters, feed-water heaters, mechanical stokers, boosters, electric headlights, and other devices for increasing locomotive efficiency; increased cost of labor and materials; and changes in working rules and conditions of employment. The improvement in the character of equipment construction and the constant addition of costly devices and appurtenances to locomotives have doubtless increased the proportion of high-priced skilled labor necessary in making repairs.

The combined effect of these and other causes has been to bring about a readjustment in the ratios of maintenance of way and structures, maintenance of equipment, and transportation expenses to the total operating expenses.

Undoubtedly from the standpoint of efficiency of operation and service to the public there were good reasons for relatively greater maintenance expenditures in 1923 than in former years. If locomotives and cars were in need of repair, it was to the interest of shippers generally as well as of those in the western group that repairs be made. But the question here is not whether the expenditures were wise or otherwise, but whether the car-

riers in the western district, if due allowance is made for excess expenditures, earned the fair return contemplated by section 15a, and whether such excess expenditures constitute a basis for reducing rates on the commodities here under consideration. The present record indicates that maintenance expenditures in 1923 may have been somewhat abnormal. It can not be definitely determined on this record to what extent they may have departed from the "reasonable" expenditures contemplated by the act. It is not necessary to do so. We can assume that there was some excess expenditure for maintenance of equipment, or even assume the correctness of complainants' contention in this regard in its entirety. Making such assumptions, the carriers in the western district more nearly earned the fair return than is indicated by the net railway operating income as reported. But we do not find warrant for the conclusion that without such excess maintenance expenditures the carriers in that district would have earned more than, or as much as, the fair return of 5.75 per cent.

Economic Condition of Agriculture

In *Rates on Grain, Grain Products, and Hay, supra*, we referred at length to the depressed condition of agriculture as shown by that record. To some extent and in some localities the conditions there narrated doubtless still prevail. Generally, the farmer who raises only wheat is in a worse financial condition than the farmer who diversifies, especially where there have been crop failures because of climatic or other conditions. It appears from the present record that the agricultural industry, both in the western group and in the entire country, although still unsatisfactory, is now in a somewhat better economic condition than when we reached our decision in that case. Our determination in that case required substantial reductions in rates on the commodities named, when the economic condition of the industry was worse than it now is.

In considering the reasonableness of rates the economic condition of an industry may be relevant as it bears on the value of the service to the industry, and as it may permanently or for a long period of time affect the ability of that industry to pay the rates assessed, but taken by itself it can not be accepted as controlling.

Closely associated with the claim based on agriculture's economic condition is the claim of complainants in No. 14393 that the transportation charges are not proportionately distributed with due regard to the element of value, or in accordance with the proper application of the test of what the traffic will bear. They put in contrast the 1923 and 1913 values of wheat and corn, and then compare the 1923 values of wheat and corn with other heavy-loading commodities, such as salt, coal, cement, and brick. Similarly, contrasts are presented with the 1913 prices of the same commodities. As the 1923 prices of the last-named commodities bear a considerably higher relationship to 1913 prices than do those of wheat and corn, complainants insist that this disturbance of relationships has operated to make these grains now bear a disproportionate share of the transportation burden in the western group. This may be stated in another way. The contention is that a unit of wheat or corn has less power to buy transportation than in 1913, while in the case of the other commodities named there is a relatively increased purchasing power. The lighter-loading grains and grain products are not taken into consideration in making this comparison. The argument assumes that the relationship which existed in 1913 was proper from the standpoint of value, and makes it appropriate to consider what the freight-rate situation now is with respect to some important commodities stated as having higher purchasing power from the standpoint of the "element of value" than in 1913. The comparison is based on the September, 1923, wholesale prices used by complainants. Movements are shown for distances ranging from 108 to 880 miles:

Commodity	Freight rate per ton	Value of commodity per ton	Distance (miles)	Proportion, rate to value ¹
Wheat	\$2.80	\$37.16	108	7.5
Corn	2.50	31.56	108	7.9
Anthracite coal	1.71	9.95	108	17.2
Cement	2.30	8.75	108	26.3
Brick	1.90	7.34	108	25.9
Soft coal	1.53	3.50	108	43.7
Wheat	3.10	37.16	215	8.3
Corn	2.80	31.56	215	8.9
Anthracite coal	2.52	9.95	215	25.4
Cement	3.10	8.75	215	35.4
Brick	2.40	7.34	215	32.7
Soft coal	2.33	3.50	215	66.6
Wheat	4.70	37.16	303	12.6
Corn	4.20	31.56	303	13.3
Anthracite coal	3.10	9.95	303	31.1
Cement	3.90	8.75	303	44.6
Brick	2.80	7.34	303	38.1
Soft coal	2.92	3.50	303	83.4
Wheat	5.90	37.16	400	15.8
Corn	5.30	31.56	400	17.0
Anthracite coal	3.65	9.95	400	36.0
Cement	4.50	8.75	400	51.5
Brick	3.10	7.34	400	42.2
Soft coal	3.46	3.50	400	99.0

Commodity	Freight rate per ton	Value of commodity per ton	Distance (miles)	Proportion, rate to value ¹
Wheat	5.70	37.16	535	15.3
Corn	5.20	31.56	535	16.5
Anthracite coal	4.37	9.95	535	43.9
Cement	4.70	8.75	535	53.7
Brick	3.60	7.34	535	49.0
Soft coal	4.19	3.50	535	119.7
Wheat	6.80	37.16	664	18.3
Corn	6.10	31.56	664	19.3
Anthracite coal	4.86	9.95	664	48.8
Cement	5.40	8.75	664	61.7
Brick	4.00	7.34	664	54.5
Soft coal	4.68	3.50	664	133.7
Wheat	8.10	37.16	880	21.8
Corn	7.70	31.56	880	24.4
Anthracite coal	6.68	9.95	880	67.1
Cement	6.40	8.75	880	73.1
Brick	4.60	7.34	880	62.7
Soft coal	6.40	3.50	880	182.9

¹ Percentage of freight rate per ton to value of commodity per ton.

In the foregoing table the rates on wheat and corn are taken from complainants' exhibits and are in each instance those in effect from a representative shipping point to a primary grain market. The rates shown for the other commodities have been prescribed by us for similar distances on the respective kinds of traffic moving in this general territory. While wheat and corn now purchase less transportation than in 1913, the existing freight rates on these two cereals are relatively somewhat lower when compared with pre-war rates than are freight rates on other commodities. In the table the present rates on grain are in each instance a less proportion of the value than the rates with which the comparison is made. Nothing of record warrants the conclusion that these other heavy-loading commodities, some of which are so-called basic commodities, are contributing less than they should from the "element of value" standpoint. The analysis indicates the influence of the element of value of the commodity in fixing freight rates. Wheat and corn have been accorded consideration in this regard.

The values of wheat and corn are constantly shifting. There has been a spread of at least 34 cents between the high and low contract prices of wheat per bushel at Chicago in each year since 1913. In 1922 the spread was 73 cents, and in 1923, 41 cents. Grain prices are usually the lowest when the bulk of the crop is marketed. With the gradual increase of farm or other storage grain will doubtless move in more uniform volume throughout the year instead of flowing to the market seasonally. To the extent that this takes place, a more advantageous farm price will probably prevail, and the seasonal tax on respondents' facilities will be minimized, with resulting lessened transportation expense.

Increases in Rates Less Than

Increases in Prices or Wages

In previous portions of this report, as in other cases, we have commented upon the financial circumstances of the carriers. The complainants ask us to establish rates on grain, grain products, and hay, which in the aggregate would be lower than those established by the Director General of Railroads on June 25, 1918, notwithstanding that the expenses of common carriers have greatly increased. Operating expenses of Class I carriers in the western district have advanced from about \$790,000,000 for 1915 to about \$1,778,785,886 for 1923, or considerably over 100 per cent. Fuel now constitutes 11 per cent of the total operating expenses of these carriers, while during the pre-war period it was about 4 per cent. Pig iron, which in 1921 sold at \$21.96 per long ton, at the time of the hearing was \$26.26 per long ton; rails advanced from \$40 to \$43 per ton from 1921 to 1923. The operating ratio of Class I roads in the western district was 67 per cent in 1911, 63 per cent in 1916, and 76 per cent for the first 11 months of 1923.

There have been heavy increases in labor costs compared with the pre-war period. In 1916 the average compensation per hour paid to railroads employees was 29 cents; in 1920, 66.5 cents; and in 1922, 60.8 cents. In the fiscal year ended June 30, 1916, the average annual compensation per employee was \$854.26; in 1920, \$1,820.12; and in 1922, \$1,623.18. On Class I railroads in the western district the total compensation to employees increased from \$479,000,000 in 1915 to \$1,006,000,000 in 1922. The trend of labor costs seems to be upward.

Other petitions for increases are pending on behalf of train, engine, and yard-service employees. Taxes of Class I carriers have advanced from \$48,000,000 in 1913 to \$136,000,000 in 1923. The cost of operation of railroads must be given due weight. The general percentage of net increase of railroad rates, and of grain and grain products, earlier described in this report, indicates that since 1913 the increase is somewhat less than the relative increment of commodity prices, and considerably less than that of wages. The cost of materials and amount of wages largely determine the cost of railroad operation.

Financial and Service Needs of Carriers

In our report in the *Kansas case* we said that respondents' present and prospective financial and service needs should be developed on further hearing. Respondents accordingly produced as witnesses the chief executive officials of representative carriers, who testified in detail as to the capital needs, and the amount that should be spent for additions and betterments in order to keep pace with growing traffic and to provide and insure adequate and efficient service in the future. The estimated expenditures for the year 1924 of the roads which thus presented their financial needs were the Atchison, Topeka & Santa Fe Railway, \$40,000,000; Chicago, Rock Island & Pacific Railway, \$20,110,000; Chicago & North Western Railway, \$17,500,000; Northern Pacific Railway, Chicago, Milwaukee & St. Paul Railway, and Missouri Pacific Railroad, each \$15,000,000; Great Northern Railway, \$12,166,000; Chicago Great Western Railroad, \$3,000,000; and the Chicago & Alton Railroad, \$2,000,000. The plans of the carriers named contemplate annual budgets of similar amounts during the next few years, which, generally speaking, provide simply for improvements, additions, and betterments to meet a normal expansion of commerce.

It is usually desirable to raise a substantial portion of additional capital by issues of stock, but in recent years this has not been possible. Such money as respondents in this group have procured has come from issues of bonds.

General Considerations

Respondents contend that the farmer did not receive the benefit of the reduction in grain rates required by us in *Rates on Grain, Grain Products, and Hay, supra*, and that he would receive no benefit from any further reduction that might now be made. In support of this contention they present testimony that varying prices were paid on the same day at different points having the same freight rate to a terminal market before and after our decision in that case; that varying prices were paid to the farmer at the same point on the same day by different purchasers; and that farm prices at a point with a higher freight rate are sometimes higher for the same grade of grain than farm prices at a point with a lower freight rate.

The record, however, indicates that the freight rate to the primary market is considered by the country buyer in fixing its price to the farmer. Theoretically the country price of a given grade of grain should be the terminal market price of that grade less freight and 3 or 4 cents per bushel handling charges, which includes insurance, taxes, and the buyer's profit. But unless local competitive conditions prevent him from doing so, the country buyer allows himself a considerable margin to take care of a fall in the price before the grain reaches the terminal market. Often this gross margin is out of all proportion to the service performed. Conversely, when there is competition, the margin between the terminal market and farm price is sometimes less than the freight rate. It is noticeable from the record before us that where there is competition in the purchase of grain, prices are usually from 5 to 10 cents per bushel higher than at points which have only one elevator but pay no higher freight rate. Moreover, elevators owned or run by associations of farmers usually pay higher farm prices than do line or independent elevators. As the terminal market price of a given grade of grain sometimes varies per bushel in a single day an amount considerably in excess of any reduction here sought, and in some instances in amounts equal to or in excess of the entire freight rate, it would be difficult by a showing of a few transactions to trace a reduction in rates that would on the average amount to but from 2 to 3 cents per bushel. On seven days in December, 1923, the variation in prices paid at the terminal market for No. 2 hard wheat each day was not less than 16 cents per bushel. The varying prices may be accounted for in part by the difference in the protein content of different sales of the same grade. This would also account for the fact that farm prices at points with a higher freight rate are sometimes higher for the same grade of grain than farm prices at points with a lower freight rate. When it is considered that the reductions asked for by complainants would at most amount to only a few cents per bushel, generally not more than 2 or 3 cents, it seems clear that price fluctuations from week to week are frequently as great as a substantial change in freight rates.

But, assuming that the farmer would get the entire benefit of any reduction made by us, respondents present computations based on the production of grain in the different states and the number of farms in each to show that in the event of a 10 per cent reduction the saving to the average farmer would range from a few dollars to perhaps \$25 per year, dependent upon where the grain was shipped. Complainants' testimony is that in 1921 Kansas shipped 35,000,000 bushels of wheat to Galveston and 55,000,000 bushels to terminal markets. Upon this movement, in the event of a 10 per cent reduction in the freight rates to these markets, the average yearly saving per Kansas farm would be about \$12.

The Commission's Duty under the Act and the General Principles That Govern

Agriculture is a basic industry. For the last 10 years the average annual value of agricultural products has exceeded \$16,000,000,000. If the farmer for an extended period fails to get a fair wage for his labors and a return upon his investment, his adversity must be reflected in other activities in agricultural regions, including the railroads, and, to some extent, in the country as a whole. The federal government recognizes the importance of a prosperous agricultural industry. It has exerted and is exerting its powers in many ways to secure such prosperity. As one of the agencies of that government, possessing a jurisdiction based upon and limited by the grant of authority from the law-making body of the Nation, we are dealing with what complainant contends to be a vital factor in the farmers' present economic condition, namely, the freight rates on certain commodities he produces.

We recognize the importance of agriculture and are in entire sympathy with any lawful measures that may be adopted for its permanent good, but we believe that the part of freight rates in the present economic condition of agriculture has been overemphasized by many. Complainants recognize that the freight rate from the farm to the primary market is no more than one of the elements considered by the country elevator in fixing grain prices to the farmer.

Grain and grain products are moving and have moved freely in the channels of commerce. The amount that would accrue to the average farmer in the event of an assumed 10 per cent rate reduction on grain and grain products as indicated by this record is small. On the other hand, as to some of the respondent railroads, the effect of a reduction in rates on grain and grain products to the extent here asked, in addition to what has already been made, would be little, if at all, short of disastrous. The Chicago Great Western and the Minneapolis & St. Louis, for example, earned but 1.27 per cent and 1.26 per cent, respectively, on their reported property investment in spite of the fact that 1923 was a peak year from the standpoint of traffic handled. Other carriers earned rates of return on their reported property investments as follows: Missouri Pacific Railroad, 2.31 per cent; Chicago, Milwaukee & St. Paul Railway, 2.89 per cent; Northern Pacific Railway, 3.19 per cent; and Chicago, Rock Island & Pacific Railway, 3.90 per cent. A 10 per cent reduction in the rates on grain and grain products would result in an annual loss of \$2,492,408 to the Milwaukee, of \$1,513,204 to the Rock Island, and of \$1,225,000 to the Northern Pacific.

The bulk of the national grain supply is produced in the West. Much of this traffic must move long distances, and this requires facilities for timely and efficient transportation without which these products would be of little value or benefit. Unless the railroads owning these facilities realize sufficient revenue to enable them to function with a high degree of efficiency, industry and commerce in general, including agriculture, will suffer.

Upon the flourishing condition of these two industries, agriculture and transportation, depends largely the country's permanent prosperity. To assist one of them unduly at the expense of the other at a time when neither is in an ideally prosperous condition, merely because one may be in a worse condition economically than the other, would be of doubtful value to the assisted industry or to the country, assuming for the moment that it is within our power arbitrarily to render this assistance. It must be recognized that we can not require unduly low rates on some commodities for the benefit of one class of shippers any more than we can arbitrarily increase rates on other commodities because the shippers thereof may be enjoying excessive profits. On the other hand, if agriculture, as represented by the commodities here involved, has a lawful grievance so far as its freight rates are concerned, it is entitled to have the situation corrected even if it should become necessary to increase rates on other commodities.

Adequate Revenues Necessary to Good Service

We have an illustration of the importance of service in the recent past. In 1920, after the carriers were released from Federal control, when it became apparent that unless the carriers were given financial assistance in the way of increased rates a breakdown in the transportation system of the country might result, the other industries of the country practically with unanimity came before us urging increases. These were granted. Since those increases substantial reductions have been made in the rates on commodities in general, and still heavier reductions on grain, grain products, and hay, the commodities here in issue. The carriers as a whole in the western group have yet to make a fair return on the value of their properties over any considerable consecutive period of time. There has been, nevertheless, improvement in service, but, if further substantial revenue losses are to be sustained by respondents at the present time, the public interest would be directly affected through a further weakening of railroad credit and a lowering of the standard of railway service.

In this situation, our sole function is to administer the interstate

commerce act, in conformity with the standard given us by Congress as interpreted by the courts. The shippers' safeguard against the exaction of exorbitant charges is found in section 1 of this act, which provides that "all charges made for any service rendered or to be rendered in the transportation of passengers or property * * * shall be just and reasonable." The determination of whether rates on particular commodities are reasonable or unreasonable involves many considerations and is affected by many circumstances and conditions. If those advocating reductions in the instant proceedings have met the usual tests of the reasonableness of rates, approved by experience and valid in law, and the rates on grain and grain products and hay are unreasonable, it is our duty under the act to prescribe the just and reasonable rates hereafter to be observed. We so stated in the *Kansas case*.

Here, as upon the former hearing in the *Kansas case*, respondents assert that the carriers in the western group have not made a fair return from their operations, and that there is no legal ground for reducing the rates on grain and grain products. Respondents' position is that, if rates on grain and grain products are relatively too high compared with rates on other commodities, the improper relationship should be cured by advancing rates on other commodities, rather than by reductions in the rates on grain and its products. Those advocating reductions insist that shippers are entitled to reductions in rates on grain, grain products, and hay irrespective of whether the carriers are making a return at the rate of 5.75 per cent on the value of their properties. They rely on certain language of the Supreme Court in *Dayton-Goose Creek Ry. v. U. S.*, 263 U. S. 456, 480, to the effect that the statute does not require the use of the net return from all the rates as evidence to fix a particular rate or class of rates. The court said:

"In such an inquiry, the Commission may have recourse to the service done, its intrinsic cost, or a comparison of it with other rates, and need not consider the total net return at all."

This does not forbid us to consider the net return of the carriers but merely says that we need not when considering a particular rate or class of rates. The matter is for our sound discretion. Nor does it limit or qualify our duty under the above-quoted provision of section 15a. If the reduction in the particular rate or class of rates has no substantial effect upon the aggregate carrier revenue there may be no occasion for considering the latter duty. If, on the other hand, it has a substantial effect upon the aggregate revenue, such occasion arises.

Class I carriers in the western district handled in 1922 74,868,565 tons, or 4,560,509 cars, of the commodities here considered, representing 13.6 per cent of all carload tonnage; grain and grain products furnished 16.1 per cent of the tonnage and over 20 per cent of the total carload ton-miles of 22 Class I carriers in the western district. The revenue losses which would result from a reduction in those rates to the extent here asked have been shown. The carriers in the aggregate in this group have since federal control failed to make a fair return in any year in spite of the heavy tonnage of 1923. About 225 short lines in this territory are dependent in large measure upon grain tonnage, which constitutes an even higher per cent of their total traffic than in the case of the larger roads. Generally these short lines in the past few years have all had financial difficulties. In the three years ended in 1921, 151 Class II railroads in the western district incurred a total net deficit in excess of \$11,000,000.

The general level of rates now in effect is that resulting from our action in *Reduced Rates*, 1922, wherein we specifically considered whether the commodities now before us should further participate in the general reductions then made. Looking to the future, we then determined that the rates and charges which would result from that decision would enable the carriers to earn a fair return, as qualified in the act. These commodities form a substantial part of all traffic in the western group. The year 1923 was a peak year from the standpoint of tonnage handled, yet the carriers failed to make the permitted return. We have no assurance on this record that there will be such further increases in tonnage in the immediate future, or such reduction in operating expenses as to enable the carriers to make anything in excess of a fair return.

Hay

Complainants admit that the rates on hay are not unreasonable when the usual tests are applied. They rely solely on the "value of the service" to the shipper, and claim that present rates are stifling the traffic. But the record shows no market in the country unsupplied with hay to the extent of its needs.

No producers or consumers of hay in the western group appeared at the hearings. Only hay dealers appeared. They claimed that lower rates would increase the volume of tonnage handled at the large markets, and that they would thus be enabled to obtain hay at more remote points and ship to more distant consuming points. Whether this would result is problematical, as will appear from a later discussion of the evidence relating to the mountain-Pacific and southern groups. The falling off in the movement of hay from the Middle West to southeastern territory is the product of other causes, although freight rates may be a factor. Hay

produced west of the Rocky Mountains moves by rail to the Pacific coast, thence by water through the Panama Canal, and as far inland as Memphis, Tenn., Louisville, Ky., and Birmingham, Ala. The southern farmers are also growing more hay or hay substitutes than formerly, and this is a part of the diversification program in the South. Assuming that some additional tonnage might be obtained by a reduction in hay rates, the question is whether Middle West carriers will make voluntary reductions to meet competition of hay from the Far West. Hay is a light-loading commodity, the average load being about 12.5 tons, and now pays relatively less compared with other traffic than in 1917. On seven representative roads in 1917 hay produced 0.81 per cent of the total carload ton-miles and 1.23 per cent of the carload revenue. In 1923 the ton-mile percentage was 0.63, and the revenue percentage was 0.93.

Mountain-Pacific Group

The northwestern States Idaho, Montana, Oregon, and Washington produce a heavy surplus of wheat, but little coarse grain. The rate-regulating commissions of Idaho and Washington urge that low export rates should be established by respondents to move the wheat from producing points in these states to Pacific ports.

A 10 per cent reduction in rates on grain and hay would be of little assistance to the producers of those commodities in this section, even if they received its full benefit, which is not probable. A much greater cut would be necessary to put the producer on a paying basis. The Public Service Commission of Oregon urges that whatever reduction is necessary for this purpose should be required by us. But the evidence does not show that the grain and hay rates in this section are unreasonable *per se* or by comparison with rates on other commodities. On the contrary, respondents showed that the grain and hay rates from eastern Washington to Puget Sound ports were lower than those on other important moving commodities, including lumber, salt, and cement, to or from Seattle, for corresponding distances. These rates were adjusted by state authorities, after long and careful investigations, in both Washington and Oregon. Interstate rates have been aligned with reference to the intrastate rates in those states, with certain exceptions not material to this investigation.

California consumes more wheat than it produces. Accordingly wheat must be shipped in from other states to supply the needs of consumers, as well as for blending purposes. As California is deficit territory, the price of wheat is based on prices at primary markets east thereof, plus the freight rate to California. The result is that a general reduction in wheat rates would automatically reduce the price received by the California farmer for his wheat, hence these shippers make no request for reductions. The Grain Trade Association, composed of California grain dealers, asks that if any reductions be made in the grain rates to eastern or Gulf ports, corresponding reductions should be made to Pacific ports in order to maintain the existing relationship on export traffic.

Southern Group

Prices of grain in the Southern states are based on the prices at primary markets, such as Chicago, plus the freight rates thence to given points in the South. As the South is a deficit section in the production of grain, that is what would be paid under ordinary conditions. If the rates from such primary markets into the South are reduced, the logical result will be a corresponding lowering of grain prices at southern points. This will react on the diversification program by influencing cotton farmers not only to discontinue their surplus grain production, but also to secure their necessary supplies from the North and West instead of producing them. Every farmer who appeared at the hearing testified that such a reduction, in its effect upon the South, would be nothing less than a calamity. Accordingly, they ask that no such reductions be made in the rates on grain, grain products, and hay from Ohio and Mississippi river crossings to points in the South and between southern points generally.

Eastern Group

In the eastern group the only evidence on behalf of producers was presented by certain witnesses for the Illinois Commerce Commission. The condition of agriculture in this group is generally better than that of the farmer in the western group or in the Pacific Northwest. No shipper appeared at the Washington hearing. Representatives of holders of railroad securities appeared at both the Washington and Chicago hearings urging the financial circumstances of the carriers throughout the United States, particularly in the West, as a reason why reductions should not now be made. The Millers National Federation appeared to state that, while they sought no affirmative relief, if reductions were made in the grain rates they should likewise be extended to rates on grain products; and that the organization favored equalization of the rates on grain and grain products.

The aggregate value of the cereal crops in the eastern group in 1923 was \$993,974,000, as compared with \$887,410,000 in 1922.

Generally speaking, producers of grain in Illinois, Indiana, Michigan, and Ohio ship the bulk of their grain to near-by markets, often on intrastate rates, and the saving from a 10 per cent reduction in the freight rate would be measured in mills per bushel. The states named produce over 80 per cent of the grain in this group.

Reductions greater than 10 per cent in the rates from Illinois and western Indiana, both domestic and export, to trunk-line and New England territories were voluntarily made by respondents prior to the general reductions of 1922. For example, the proportional rates from Chicago, Peoria, and St. Louis to the eastern seaboard are now 0.5 cent lower than they were on June 25, 1918. All advances allowed by us in 1920, and 0.5 cent additional have been removed as to these rates. The ton-mile earnings under these rates range from 3.3 to 7.7 mills.

With respect to trunk-line territory, the important movement is on the ex-lake rates on grain and grain products from Buffalo, N. Y., Erie, Pa., and West Fairport, Ohio. No one appeared advocating reductions as to these rates or as to rates generally in trunk-line and New England territories.

Commissioner Lewis Favors Readjustment

Commissioner Lewis in his dissenting opinion said in part:

I do not concur in the majority report. The record reveals that in the new era of prices and values into which we have passed since the war, the freight rates on grain, and particularly on western wheat, have been thrown out of proper relationship with other rates. We recognized this three years ago when the new levels had hardly begun to be established, and when the carriers had hardly begun to see net earnings. We applied lower rates to grain and hay, but this readjustment was wiped out to a very great extent when, two years ago, we applied the 10 per cent reduction to all other traffic. The present record affords proof that the existing rates on grain and grain products, but not hay, are unreasonable in the western and eastern districts, and on this showing I favor the removal of the remainder of the *Ex parte* 74 increases in the West, and a 10 per cent reduction in the East, the latter covering the principal movements from western producing points to the great eastern consuming regions and to the various ports for export.

We, however, have duties under section 15a as well as under section 1, and are faced by the fact that the carriers' net return has not been and is not now as great as is contemplated by law or is necessary for the maintenance of an adequate system of transportation. Therefore, what is called for in this instance is readjustment of rates rather than reduction of revenues. The reduction on grain, therefore, should be accompanied by increases of rates on other traffic to an extent to equal revenue loss occasioned by the reduction. The carriers should be told to file such compensating increases and be given assurance that they would be acted on with such promptness that their 1924 revenues would not be materially reduced, their credit affected, or the solvency of the weaker carriers menaced by reason of such readjustment. There is no reason to believe that the railroad executives would not favor a readjustment of grain rates, provided their revenues were protected.

A removal of the remainder of the *Ex parte* 74 increases on grain and grain products in the western district would aggregate approximately \$17,000,000, as estimated on the basis of 1923 business. While only approximately 1 per cent of the total freight business of western carriers, its effect on individual carriers would be such as to cause serious apprehensions not only as to their solvency but ability to render adequate service. Also at no time have the carriers of the western district as a whole realized that fair return contemplated by the act or that is held to be necessary for a substantially sound national transportation policy. Under such conditions the obligations and duties imposed by section 15a present themselves. It certainly is important to the grain men themselves that the carriers be maintained in a condition to render adequate service. They have had experience with heavy losses arising from lack of such service and know that it is more vital in the final analysis than a small reduction in rates.

There can be no doubt that such a minor readjustment in the West as would be called for by compensating increases aggregating only \$17,000,000 in an aggregate freight business of \$1,694,000,000 last year (approximately \$1,500,000,000 excluding grain and grain products) could be made without a perceptible effect on prices or disturbance of business. A restoration of the 10 per cent reduction made in less-than-carload rates by *Reduced Rates*, 1922, which cost the western carriers from \$18,000,000 to \$19,000,000 of revenues annually, would more than cover it. Rates on certain manufactured wares might well be scrutinized. There are in existence rates depressed by conditions that no longer exist, notwithstanding the fact that numerous readjustments have been made in recent years. The reduction of 10 per cent through the eastern group would amount to only four-tenths of 1 per cent of aggregate freight revenues and assuredly present no problem.

I do not think that such a shift in rates as here proposed, reducing existing high rates on grain that can not bear such charges

and correspondingly increasing rates on other traffic which can easily bear higher charges, is in any way incompatible with section 15a, as the majority report would indicate. Opposition to section 15a will certainly increase if it can be construed in such a manner as in effect to freeze the rate structure and prevent changes that are necessary to meet changed conditions.

Commissioner Potter Suggests Rate Increase

Commissioner Potter in his concurring opinion said in part:

No one may ask more than to have the aggregate burden fairly distributed according to the ability of traffic to bear it. To make possible and facilitate traffic movement is a sound principle of rate making. Grain and grain products are moving and would continue to move even under higher rates. It is not claimed that reduction would increase the movement of grain or its products. The most that is claimed is that producers would be benefited. It is by no means certain that this would result. The amount per bushel, or per one hundred pounds, involved in the reduction asked for, would be no more than current market fluctuations from day to day. The middleman or dealer might benefit but not a penny would every reach the producer.

About 85 per cent of all the shippers pay to the carriers is used to pay operating costs and taxes. If the owners of the railways were to receive nothing for the use of their properties, which we have found worth more than \$20,000,000,000, rates could not possibly be reduced under present conditions of high cost of every thing the carriers use by more than 15 per cent. A general rate increase which would assure a fair return to railway owners, improve railway credit, encourage betterments and expansion, and stimulate purchases, would help the farmer by increasing the demand for his products and improving the price which he receives. An increase would probably be the best thing that could happen to the entire country. A general decrease would be certain to bring disaster and the producers of agricultural products would suffer most. We are passing through a serious period in world affairs. Times are out of joint. Discontent breeds criticism. We are suffering an epidemic of selfishness, greed, high living, extravagance, and waste. Railways are kicked and cuffed because of habit and because they are within the easy reach of the discontented and disgruntled. The farmers and railways should pull together. Their interests are identical. They share alike in prosperity and adversity. Each class should do for the other all it can. The both suffer under low prices for what they sell and high costs for what they buy. Both are at a disadvantage as compared with practically every other industry. High costs of production and distribution hit them both alike. They should take up fundamental problems together and in cooperation. They should work with one another for mutual benefit.

The talk about the freight rates on farm products and the Esch-Cummins act as being responsible for, or having the slightest effect on, the condition of any part of the agricultural industry is a colossal exhibit of unsoundness and insincerity. We should say what the well-informed know, that they have not the slightest effect on the prices the farmer receives for his products. Haul them for nothing, and he would not be a bit better off. The most that is claimed for a reduction is that it would have what is termed a psychological effect upon the farmers. It is supposed he would think he is being benefited. The farmer would not be fooled very long by such deception.

It would be easy to become enthusiastic over the plan suggested by one of the dissenters to put such pretensions to the test if some honest way could be found to get the money to do it with. It is difficult to go along with a proposition to take this money from the railroads. Just how we are authorized to take away from them twenty or thirty millions of dollars a year to prove that some one else is wrong, and that after all the carriers are entitled to this money, I can not see.

Low prices are not in themselves the basis of distress in agriculture. They are results, not causes. The basic ill is overproduction. Correct that and prices will adjust themselves to a satisfactory level. As long as there is a surplus above the market needs the competition of producers for the market will force the prices down, no matter what the freight rate is, and even if it were entirely removed. If the farmers' dollar is not worth as much as other dollars it is because they have made it so by excess production. Their dollar is, in fact, worth as much as any dollar. The trouble is that competition among themselves forces them to give up too much for it. Excessive production is the instrument that does self-inflicted damage. This is the whole story and explanation of the wheat farmers' present plight. The country needs for domestic consumption and for seed about 600,000,000 bushels of wheat per year. As long as conditions remain as now in the foreign market a crop of that size will be worth more to the farmer than 800,000,000 bushels, and the cost should be from 15 to 20 per cent less. If producers are misled to excess production by expectation of a foreign market which is not realized, the railways should not be expected to bear their loss. Charges of carriers have been low when compared with other costs between producers and con-

sumers. For furnishing cars, power, and for hauling and management the compensation of the railways averages about one cent per ton per mile of haul, and for that compensation they throw in a large amount of storage facilities for producer, dealer, and consumer. The charge of one cent per ton per mile is creditable when compared with a charge of \$1 per ton per mile before the receipt or after the delivery of traffic by the railways. Nowhere else is so much capital and ability rendering such service for such small compensation.

When an agency of government is urged to take action to correct an evil, it is necessary to consider with what agency the duty lies. There is an evil and the farmer is the victim. The action necessary to correct it is not within our function. We have to do with transportation, and transportation is not at fault. The cause of distress is overproduction. As between the farmers and the railways, the farmers are to blame and have no right to call on the railways to bear the burden. There may be some one else to whom they have a right to look. The present condition of overproduction largely is due to the fact that during the war the farmers were induced to increase production in the public interest. Perhaps that fact entitles them to look to the public for fair protection and for some assistance in carrying the burden which the representatives of the public asked them to undertake. In that aspect it is not a question of price fixing or of interference with the laws of supply and demand. It is a matter of good faith and common honesty to do justice in a situation which may never occur again.

Examiner Favors Denial of Section IV Applications

WASHINGTON, D. C.

DENIAL of the applications filed by the western transcontinental railroads on August 11, 1923, for authority to publish rates on a limited number of commodities from points in eastern defined territories, Groups D to J inclusive, to Pacific coast terminals which would be lower than the rates contemporaneously in effect on the same commodities to intermediate points, by relief from the provisions of the long and short haul clause of section 4 of the interstate commerce act, is recommended in a report proposed by M. A. Pattison, attorney-examiner, made public by the Interstate Commerce Commission on July 23. The purpose of the applications was to enable the roads to meet the increasing Panama canal competition.

The territory from which the proposed rates would apply lies, roughly, between Colorado common points, on the west, and a line drawn north and south through Chicago, on the east, and includes also a few points in Group C territory east of Chicago on the Chicago, Milwaukee & St. Paul. Group D, embracing Chicago territory, is the most important origin group. With a few exceptions it was proposed to apply the Group D rates from all points west thereof to and including the Colorado common point line. The points of destination are ports served by steamship lines operating through the canal. Carriers operating east of Chicago did not join in the application and the Boston & Maine and New York, New Haven & Hartford actively opposed it.

The record indicates, the examiner says, that the proposed rates more than cover the additional expense of handling the traffic, are not as a rule lower than necessary to meet from Chicago territory the competition by the water route from eastern points of origin, and are not so low as to threaten the extinction of legitimate water competition. Nor does it seem probable, he adds, that they would impose an undue burden on other traffic or jeopardize the return on the value of carrier property generally. If there were nothing further to consider, he says, it could be said that the applicants had met all the requirements of the law and were entitled to fourth section relief. However, he finds, the granting of the application would prejudice certain localities and might very seriously impair the ability of the water lines to maintain their present standard of service while having only a slight

effect on the revenues of the rail lines. On these points he says:

Before fourth section relief may be granted this commission must be satisfied that there would not thereby be created infractions of other provisions of the act, particularly those of section 3 prohibiting undue or unreasonable preference or advantage, or prejudice or disadvantage to persons or localities.

Because Pittsburgh enjoys certain rail-and-water rates on iron and steel to the Pacific coast, the western carriers are proposing all-rate rates, not from Pittsburgh but from Chicago, approximately the same as the rail-and-water rates from Pittsburgh, and are blanketing those rates to the Colorado common point line, departing from the blanket adjustment only at Minnequa, Colo., because of the order entered in *Colorado Fuel & Iron Co. v. Director General*, 57 I. C. C. 253, prescribing rates from Minnequa not in excess of 77 per cent of the rates from Chicago. Thus the natural advantage of location near the Atlantic seaboard which Pittsburgh enjoys is to be neutralized by extending it to points from 500 to 1,500 miles farther away. Manufacturers of other commodities in the Central West would likewise be accorded a basis of rates to which they are not legitimately entitled by any natural advantage which they possess, whereas the manufacturers of the same commodities on the seaboard would have their advantage taken from them or diminished. While the manufacturers in the Central West would thus have accorded to them the advantage of proximity to water transportation to which they are not geographically entitled, and would be placed more nearly on an equality with the eastern manufacturers nearer the sea board with respect to shipments of the latter moving to the Pacific coast cities through the canal, they would not only continue to enjoy the advantage of their more westerly location on traffic moving all-rail from the East, but this advantage would be increased.

It is important to note also the effect the proposed reductions would have on the dealers and consumers on the Pacific coast and in the intermountain states. At the present time they are on an equality in purchasing in the Central West. If the reductions sought in the terminal rates are granted, this equality will no longer exist. The Pacific coast dealers will retain their present ability to purchase more cheaply in the eastern markets and in addition will have the advantage of being able to purchase in the markets of the Central West upon more favorable terms. The differences in freight costs per minimum carload would range from \$90 on some commodities to \$192 on others, not inconsiderable amounts. Dealers in the intermountain country and on the Pacific coast purchase in the same markets and compete for sales in the same territory. With the eastern markets now closed to the intermountain dealers except on payment of higher freight rates, and the Central West available on equal terms with the Pacific coast dealers, to accord to the latter the markets of the Central West also on more favorable terms than can be obtained by the intermountain country, must necessarily be prejudicial in effect.

Section 500 of the transportation act, 1920, declares the policy of Congress to be "to promote, encourage, and develop water transportation, service, and facilities in connection with the commerce of the United States, and to foster and preserve in full vigor both rail and water transportation." The field of operations of the water lines is restricted to a comparatively narrow area along the Atlantic seaboard and to a much narrower area along the Pacific coast. Since but little traffic originates at the ports the water lines must reach out for it into the interior. The inherent disadvantages of shipping by water prohibit them from competing with the rail lines at points where the combined rail-and-water charges equal the all-rail charges, consequently the territory from which they may draw traffic is confined to an area from which the rail rates plus the water charges are substantially lower than the all-rail rates. Their destination territory is confined almost exclusively to the Pacific coast cities. Unlike the rail carriers they have no intermediate territory from which to draw or to which to deliver traffic. It is strongly urged, therefore, that to permit the western carriers to publish from Chicago and west thereof rates to the terminals which are less than reasonable and less than the rates contemporaneously maintained to points hundreds of miles nearer the originating territory for the avowed purpose of depriving the water lines of a substantial portion of such traffic as they are now able to obtain would be to disregard wholly the policy of Congress to promote, encourage and develop water transportation. To be of material benefit to the rail carriers a substantial portion of this tonnage must be diverted to their lines.

The declared policy of Congress is to foster and preserve in full vigor both rail and water transportation. The inquiry naturally arises whether a denial of the application would not run counter to this policy in so far as it applies to rail transportation. It is said that to deny the application is to prevent the rail carriers from competing for the Pacific coast traffic, leaving the water lines free from any competition of any kind or character. The inference is that the rail carriers are now precluded from handling any traffic originating on the Atlantic seaboard destined to the Pacific coast. On the contrary, they handle all the traffic which is not of a

nature susceptible to movement by water and such traffic as because of the necessity for expedited movement or because of the superior service offered by the rail lines, might otherwise move by water.

The benefits which the rail carriers as a whole might realize from the granting of the application appear greatly disproportionate to the loss which the water lines would suffer. The record shows that the total tonnage, both eastbound and westbound, of all the water lines is but a very small fraction of that of the transcontinental carriers operating west of Chicago. It seems evident, therefore, that the diversion of any substantial tonnage from the water lines would have but an inappreciable effect on the net revenues of the rail carriers while, on the other hand, it might very seriously impair the ability of the water lines to maintain their present standard of service.

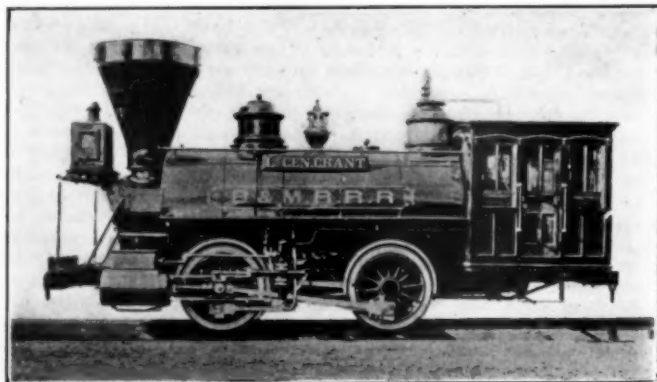
The application should be denied.

As indicating the extent of the canal competition the report says:

While the natural growth of population in the West has been reflected in an increase in the total traffic of the western transcontinental lines the all-rail movement to the Pacific coast of many important commodities handled by them has declined. This is illustrated by the relative movement of iron and steel articles. During the months of June, July, and August, 1920, 42,004 tons of the iron and steel articles listed in the application moved from Group D to the terminals and to Los Angeles. During the same months of 1923 only 14,496 tons moved. The movement of these articles by rail from all groups, A to J, inclusive, to the terminals, Los Angeles and interior California, Oregon, and Washington for the months of June, July, and August, 1921, 1922, and 1923, shows no upward trend, whereas the movement of similar articles through the canal during the same periods increased in a marked degree. From exhibits introduced by the rail carriers it appears that in 1921 they hauled 83,473 tons westbound and the water lines 91,197 tons. In 1922 the movement by rail was 63,790 and by water 260,949 tons, and in the following year 82,563 and 446,310 tons, respectively. The figures given for the water movement are approximate only, as the classification of vessel cargoes is not as accurately kept as is the case of traffic moving by rail. The United States Shipping Board reports a movement through the canal of iron and steel articles during June, July, and August, 1923, of 386,689 long tons; equivalent to 433,092 net tons.

The inroads which the water lines are making on the traffic of the rail carriers is further indicated both by the increase in the number of vessels engaged in the trade and in the total tonnage carried. At the time of the former report there were 13 steamship lines operating 75 steamships between the Atlantic or Gulf and Pacific coasts. At the present time there are 15 lines operating 141 steamships. In 1921 the total westbound tonnage of intercoastal traffic amounted, according to the Panama Canal record, to 893,396 long tons. The movement in 1923 as reported by the Division of Statistics, Bureau of Research, United States Shipping Board, was 2,764,029 long tons, an increase over 1921 of 1,870,633 tons, or 209 per cent.

The rail carriers recognize that transportation by water is so much cheaper than by rail that they can not hope to divert to their lines much, if any, traffic which may originate at the ports or close thereto. Most of the production, however, is inland and they anticipate that by reducing their rates from Chicago so as more nearly to equal the combination of the rail-and-water rates from the principal originating points more tonnage will move over their lines thus increasing their net revenues. The bulk of the westbound movement through the canal consists of iron and steel articles and the principal points of production are in the Pittsburgh district.



A Locomotive of Civil War Days

Contracting for Electric Power Service

Suggested Form of Contract Which Provides for Power at Cost with Increasingly Better Service

By Sidney Withington

New York, New Haven & Hartford Railroad Company

THE PRACTICE has gradually developed, in making contracts for electric power, to base the price on what amounts virtually to the cost of production. This is on account of the fact that government agencies generally have assumed jurisdiction over the rates of return on capital investment in public utilities companies. It would in many ways be of advantage to go a step further and base large power contracts on actual production costs, and the following notes are presented with a view to stimulating discussion on this question.

The usual form of contract for steam-generated electric power under present conditions consists of two principal parts, (1) "Primary" or "Demand" or "Service" charge based on the maximum demand received over a given period (usually five minutes, fifteen minutes, thirty minutes or an hour), and (2) "Secondary" or "Energy" charge based on the quantity of energy actually used.

The primary or demand charge is intended to cover fixed charges such as depreciation, interest, taxes, prorated on the basis of that portion of the power plant, equipment, and other facilities set apart for the use of each customer. It is contemplated that out of this portion of the power charges the stockholders will obtain the return on their money invested and pay interest on borrowed money.

The secondary or energy charge usually represents approximately the production cost (maintenance and operation) with the addition of an item to cover all contingencies which can be foreseen.

Within the last ten or fifteen years there has sprung up the custom of including in addition to the primary and secondary charges, a provision to cover fluctuations in the cost of fuel, which it is now recognized cannot be accurately predicted from year to year. In some instances also variation in labor rates is recognized and provided for by an appropriate provision.

The principal items which go to make up the cost of power production are thus recognized in important power contracts and the price of the power is virtually based on cost, on account of state regulation. However, an important item is left largely to chance, and the large consumer is likely to lose a consideration of considerable value when on account of improvement in the art of power production, facilities of increased efficiency are developed and installed. Furthermore, the power company is quite likely, in figuring its power costs, to err on the safe side in considering contingencies, many of which are extremely improbable.

Consumer Would Benefit

It is thus evident that if a contract were made for power at actual cost, it would be of benefit to the consumer and should not be of any disadvantage to the power producer. The developing of such a contract, and defining actual power costs, should not present serious difficulties. In fact, the present method of determining prices is based to a very large degree on the solution of many of the problems which would be involved. For instance, it is in general from the primary or service charge (based on the pro rata demand of each consumer) that the owners of the property and the bond holders receive a return on their money. Indeed, this return

or interest rate is now fixed in many localities by the public utility regulatory bodies.

There are two general methods of regulating the dividend rate of public utilities properties. The more common one is to fix a percent of the capital invested which it has been determined is fair under the local conditions. The interest rate having been determined, the power rates are naturally fixed automatically to allow this rate to be paid. Increased economy of production is reflected only in lower rates for power. The other means of interest regulation consists of a sliding scale, the return to the stockholders being an inverse function of the rate to the consumer. This method, of course, to be fair must take into account fluctuations in cost of material and labor items over which the utility company does not have control. These components, however, may be readily determined and allowed for. This method has a distinct advantage over the other in that it leaves an automatic incentive on the part of the utility company managers to continually endeavor to increase the efficiency of power production and distribution.

Depreciation Provided For

Not only must the stock dividends and bond interest be paid from the primary charges, but an allowance must be made for depreciation, and this is one of the more intricate problems of determining actual cost. The problem, however, exists to as great an extent in determining power rates at present as it would if power were to be furnished strictly "at cost."

"Depreciation" arises from three sources, (1) wear-and-tear, (2) inadequacy and (3) obsolescence. A machine or other property is retired from service if it is worn out; if it becomes inadequate on account of growth of requirements of the service to be performed; or if it becomes obsolete on account of increased efficiency of more modern apparatus. While each of these three sources may be entirely distinct from the others as a cause of removal from service, nevertheless all three operate fundamentally in exactly the same manner and there is usually no occasion to differentiate.

When a unit of a plant has become unserviceable from any cause and must be replaced, the investment represented by it (less the salvage value) ceases to be a portion of the capital used for the production or distribution of power. The cost of the new unit cannot be added to the cost of the original one, but must replace it. The loss in capital over a period of years is a part of the cost of production during that time. Depreciation may thus from some points of view be considered an operating expense.

The most usual method of meeting this problem is this: When a facility is retired from service there should have been money set aside which, added to the amount that the facility is then worth either as second-hand or as scrap material, is sufficient to pay for its replacement in kind. Contributions to this replacement fund should be made regularly, in order that the total value of the property may not diminish. The amount of this periodic contribution is based fundamentally on the probable life of the apparatus, which is a matter of judgment or estimate.

There is now, unfortunately, no generally accepted basis

for estimating the probable life of various component parts of power generating and distributing facilities. There is, however, a vast amount of information available and it should be relatively easy for an unprejudiced body of technically experienced men made up of representatives of power companies, large power consumers and public regulatory bodies, to get together and agree as to the probable life (considering, of course, all three items—wear-and-tear, inadequacy, and obsolescence) under various typical conditions, to be used as a guide in determining depreciation.

Of the three factors in depreciation (wear-and-tear, obsolescence and inadequacy), one or another will determine the life—the question is, which? This affects the salvage value estimated. All figures which are set up by a joint committee should fully explain how they are developed, if they are to be of value in individual instances.

The actual life of any individual building or machine or boiler or transmission line or duct line or cable may not, on account of local conditions, correspond exactly to the average expected life as set up, but in the long run there is little to be feared with respect to such inconsistencies, and as conditions change from time to time and additional information is available there is nothing to prevent a modification of the assumed average term of life for the various items.

Having developed in an entirely impartial manner, for the guidance of the power company manager, an average presumed useful life for each important part of his property, and a presumptive residuum or salvage value, the depreciation charges are readily calculable. It is to be noted, however, that the periodic charges or contributions to the depreciation fund should not usually be made (as they are generally made at present) on a "straight line" basis, that is, by dividing the total desired amount of the fund by the pre-determined life of the facility, for the fund is not idle while it is in the making, and each contribution is immediately put to work as soon as it is made, and thus earns interest. The amount of these periodic contributions, whether monthly, quarterly, semi-annual or annual, should logically be determined on an annuity or "sinking fund" basis, such that with the interest added, the final desired amount will be reached at the end of the allotted time. The compounding should, of course, be figured as often as the contributions are made.

A Fund for Making Needed Improvements

The reserve or depreciation fund as it accrues may be invested in the concern for extensions in the plant or it may be invested outside in readily convertible securities. In either instance the fund represents the gradual loss in capital of the physical plant, and in either instance the fund is usefully employed and is thus earning interest. This is entirely satisfactory if there is not to be a sale or reorganization of the property during the period under consideration.

In developing the amount thus to be set aside for the depreciation fund each year, the property should be divided into its various component units and the life of each unit estimated separately. The contribution to that part of the fund represented by a given unit is thus based on the assumed life of the unit and its salvage value; and total contribution to the depreciation fund is merely the sum of the individual contributions.

There are other ways of taking care of the depreciated value of facilities, some of which do not require an estimate of the life of the units or of their salvage values. If there were a sudden unexpected growth of demand for service or a radical improvement of production standards which made it imperative or desirable to replace relatively new facilities, it might conceivably be logical to impose the burden of the amortization wholly upon those benefited by the replacement. This may, however, be dangerous as compared with the principle of paying for the facility as it is used.

There are those, however, who advocate this method of taking care of depreciation. It is claimed that it has the advantage that when a facility is removed from service its length of life and its salvage value are known and the amortization is therefore definitely fixed. There is no necessity for estimates which may or may not be accurate. If an organization is growing rapidly this method may give rise to some complication in financing.

If the units of a facility are relatively small in cost as compared with the annual budget, it may be satisfactory not to maintain any depreciation fund but to charge all replacements against operation. This, of course, reduces the accounting complications a great deal, but there is some danger that it may overburden the expenses if extra large replacements are made in any one year.

It matters little in the long run how the depreciation item is figured in calculating cost of power, providing whatever method is used is followed logically to its conclusion. The problems involved all exist and must be solved regardless of how the power is to be sold.

In addition to the interest and depreciation charges, the items of taxes and insurance may be included in the fixed or primary charge. These charges are readily determined, as they are actual expenditures. It is, however, perhaps more reasonable to consider insurance premiums under "Operation" than as part of the fixed charges, that is, to figure them as part of the cost per kilowatt-hour rather than as part of the cost per kilowatt, as the insurance premium, from a cost standpoint, replaces over a term of years the occasional catastrophe.

Having thus determined the aggregate fixed or capital charge, each large consumer should pay a pro rata amount based on the proportion which his demand bears to the total demand on the plant facilities. The cost of surplus capacity which is necessary to assure reliable service and allow for contingencies is thus divided among those who benefit by it. This ratio which each consumer pays, of course, varies from time to time, and an average figure must be arrived at.

An exceedingly important consideration should be noted, especially in connection with power for electric traction purposes, where it may be impossible on account of various contingencies to control the demand. The company supplying power should agree to furnish such capacity as may be available upon emergency and at a cost which is commensurate with the service rendered and which does not penalize the consumer. A railroad may occasionally experience extreme traffic congestion on account of a wreck or other interruption, and it is that kind of emergency in which the power company should be willing to assist with its surplus capacity at reasonable cost.

A further consideration of importance in this connection is that of power factor. The consumer who provides a load with a favorable power factor should not be burdened with the cost of providing facilities for the customer whose power factor is low. An incentive should be provided to the consumers to provide loads with as high a power factor as possible, even at the expense of added apparatus to bring this about. Many power companies now take cognizance of this and the problem would not be further complicated in "power at cost" agreements.

The method of arriving at the secondary or energy cost on the basis of actual cost is very simple. The unit cost is merely the total aggregate expense of operation and maintenance divided by the total output in kilowatt-hours. Some arrangement, of course, must be made to differentiate between day-to-day or ordinary maintenance or replacement items, and items which should be taken care of by the depreciation fund. There is in general a fairly sharp line of demarcation, but it is nevertheless true that there is a twilight zone which must be accurately defined in order to avoid misunderstanding. This may be done in a number of

ways, any one of which should be entirely satisfactory to meet all conditions. Some work in this direction has already been done by government regulatory bodies.

The transmission losses should, of course, be paid for by the consumer. These can readily be calculated.

It is true that the large consumer is a more attractive customer than the small one, and the unit price of power to him may therefore logically be somewhat less. This factor can readily be taken into consideration in figuring the costs in any one of a number of different ways, perhaps by an equitable contribution to the surplus account which is maintained to take care of "lean" years.

Conclusion

The furnishing of power at actual cost will give the large consumer the benefit of increased economies in production as they are developed and obviate the necessity on the part of the utility of setting up a generous item estimated to cover contingencies which may never arise, and the benefit of which is obtained, if they do not occur, by future consumers who have had no part in contributing to the surplus which is thus attained.

Under a system of contracts for power at actual cost a more accurate method of determining depreciation should be developed. There are various methods of solving the problem, but a standardized method should be arrived at. This can best be done by a joint committee on which are technical and accounting representatives of power companies, consumers and public regulatory bodies. There is ample information available for the use of such a body, and the results of its action (which should be entirely unprejudiced) would be of great value as a guide in determining rates, even under present day conditions.

The fixed costs and energy production costs will both necessarily fluctuate from time to time as power costs fluctuate, and the consumer cannot definitely know in advance exactly what he will be obliged to pay for power. This, however, is true today even in "fixed price" contracts, practically all of which contain coal adjustment clauses and many of which contain labor adjustment provisions.

Good Supply of Box Cars on Western Roads

WASHINGTON, D. C.

THE SEASONAL heavy demand for box cars in the West to protect the grain crop movement is beginning to be felt in the Southwest. The western roads have not overlooked an opportunity for building up their supply of box cars and have accomplished a great deal in the direction of assembling suitable cars fit for grain in the grain loading territory, as well as the conditioning of locomotives for heavy service demands. In a letter to members of the shippers' regional advisory boards outlining the box car situation, L. M. Betts, manager of the closed car section of the Car Service Division, American Railway Association, says that this action will go a long way toward insuring a successful crop movement. Accompanying the letter is a statement analyzing the box car location, as of July 1, which shows:

Box cars on western roads equal to 95.8 per cent of ownership, an increase of 19,173 cars over a year ago.

The roads which have the early grain movement (in the Southwestern and the Central Western districts) show the highest ratio of cars on line.

Out of every thousand cars owned in the West, 674 are on home lines, compared with 513 a year ago.

Eastern and southern roads have 39.3 per cent fewer western box cars in their possession than last year.

While the number of box cars in the West on July 1st was below the ownership of the western lines by 18,899 cars, it is significant that these roads had 19,173 more cars than a year ago, and of particular importance is the fact that they had 75,737 more system cars on home lines.

BOX CAR SITUATION AS OF JULY 1, 1924

	Owner-ship	All box on line	Per-centage	Home box on line	Per-centage
Eastern District	294,035	281,708	95.8	164,011	55.8
Increase over July 1, 1923....	186	.....	.....	54,573	49.9
Decrease under July 1, 1923..	.....	2,301	.8	.....	.....
Allegheny District	134,603	170,522	126.7	94,944	70.5
Increase over July 1, 1923....	.....	4,276	2.6	28,410	42.7
Decrease under July 1, 1923..	2,552	.....	.....	.....	.....
Pocahontas District	17,180	19,622	114.2	10,753	62.6
Increase over July 1, 1923....	174	.....	.....	3,461	47.5
Decrease under July 1, 1923..	.....	2,293	10.5	.....	.....
Southern District	154,333	145,295	94.1	88,125	57.1
Increase over July 1, 1923....	3,483	.....	.....	19,355	28.1
Decrease under July 1, 1923..	.....	5,867	3.9	.....	.....
Northwestern District	177,250	165,594	93.4	118,552	66.9
Increase over July 1, 1923....	471	2,840	1.7	20,078	20.4
Decrease under July 1, 1923..	.....	.....	.....	.....	.....
Central Western District	190,796	184,165	96.5	131,698	69.0
Increase over July 1, 1923....	5,507	8,255	4.7	37,526	39.8
Decrease under July 1, 1923..	.....	.....	.....	.....	.....
Southwestern District	81,475	80,863	99.2	52,710	64.7
Increase over July 1, 1923....	838	8,078	11.1	18,133	52.4
Decrease under July 1, 1923..	.....	.....	.....	.....	.....
All Western Districts	449,521	430,622	95.8	302,960	67.4
Increase over July 1, 1923....	6,816	19,173	4.7	75,737	33.3
Decrease under July 1, 1923..	.....	.....	.....	.....	.....

BOX CARS ASSEMBLED FOR GRAIN LOADING

Railroad	This year		Last year July 2, 1923
	June 23, 1924	June 30, 1924	
C. & N. W.	3,543	4,037	1,736
C. St. P. M. & O.	306	373	225
C. G. W.	380	430	...
C. M. & St. P.	820	1,000	1,439
M. & St. L.	275	400	350
G. N.	2,253	2,251	649
N. P.	2,000	2,200	1,452
Soo Line	1,479	2,033	721
A. T. & S. F.	10,927	9,821	6,336
C. R. I. & P.	5,593	4,826	4,767
C. B. & Q.	3,616	3,798	3,879
U. P.	4,013	4,610	8,382
C. & A.	150	315	544
M. K. & T.	2,279	2,217	2,120
M. P.	412	2,052	2,490
St. L. S. F.	1,317	1,455	1,806
Total	39,363	41,918	36,896



The King and Queen Visiting Shops of Great Western Railway, Swindon, England

General News Department

The state of Colorado has asked for an injunction to prevent the junking of the line of the Colorado & Southern between Buena Vista, Colo., and Romley. Permission was given the company by the Interstate Commerce Commission to dismantle its tracks between these points. In its plea the attorneys for the state contend that the road is intrastate and not interstate and as such is outside the jurisdiction of the Interstate Commerce Commission.

The New York State law requiring 24-ft. cabooses and regulating the construction of cabooses, the non-use of small coal cars, etc., is now in effect. The provisions of this law, which originally were put on the statute books in 1913, were later subjected to modifications, postponing the date when they should be enforced, but the last of these modifications has now become of no effect. It appears that substantially all of the railroads affected by the law have complied with its provisions long since.

The American Short Line Railroad Association will hold its annual meeting at the St. Francis Hotel, San Francisco, Calif., on August 13, 14 and 15. The members and their families will go by two special trains. One train will leave Chicago at 6 p. m. on August 8 and go by the Chicago, Rock Island & Pacific to Kansas City, the Missouri Pacific to Pueblo, Colo., the Denver & Rio Grande Western to Salt Lake, the Union Pacific to Ogden and the Southern Pacific to San Francisco. A second special train will leave Kansas City at 10 a. m., on August 9, and will follow the same route.

Big Four Resumes Operation of Shops

The Cleveland, Cincinnati, Chicago & St. Louis has canceled its contract with the Railway Service & Supply Corporation under which that corporation has operated the shops of the railroad at Beech Grove, Ind., during the past two years and is now operating the shops directly. The number of employees now at work is about 900. To those men who were employees of the company under former conditions and who joined the strike of 1922, the road has made an offer to restore seniority rights, under certain conditions, which offer remains good for about one month.

Cheyenne Chapter, U. P. Old Timers

Men employees of the Union Pacific who have been in the service of the company for 20 years or more organized Cheyenne Chapter No. 1 of the Union Pacific Old Timers' Club at Cheyenne, Wyo., on July 15. Only those who have to their credit 20 years or more service with the company are eligible. The organizing of the new chapter was attended by President Carl R. Gray, Vice-President E. E. Calvin, and General Manager W. M. Jeffers.

Canadian Cities Not Benefiting Protest

Against Crow's Nest Agreement

Already as the result of the restoration to full effect on July 7 of the Crow's Nest Pass Agreement by the Canadian Parliament letters and telegrams of protest are being received by the Dominion Board of Railway Commissioners at Ottawa. These messages state that the discrimination, which, it is asserted to be intensified by the agreement, is doing great injury to the business in the districts protesting. Most of these come from such points in Western Ontario as Brantford and Guelph, which cities were not on the lines of the C. P. R. in 1897, when the Agreement was effected, and the railways, as they argued before the federal cabinet some days ago, will insist upon a literal interpretation of the pact which stated that the reduced rates on the commodities specified would apply only on the lines of the Canadian Pacific in existence when the Agreement was signed between that road

and the Dominion government. In a wire to the chairman of the Dominion Railway Board, the mayor of Brantford declared that the following industries in his city were being seriously affected: fruit, agricultural implements, binder twine, paints, oils and live stock. Protests have also been received from British Columbia against the failure of the government to make the Agreement apply to that province and the resultant discrimination against that province and in favor of Eastern cities in supplying the market of the prairie provinces. The attitude of the Railway Board is that these protests must be dealt with by the government which in the first place signed the Agreement.

"Pittsburgh Plus" Ordered Discontinued

The Federal Trade Commission, Commissioner Gaskill dissenting, has issued an order directing the United States Steel Corporation, the American Bridge Company, the American Sheet & Tinplate Company, the Carnegie Steel Company, the American Steel & Wire Company, the Illinois Steel Company, the Minnesota Steel Company, and the Tennessee Coal, Iron & Railroad Company to cease and desist from the use of the "Pittsburgh plus" system of basing prices of rolled steel products such as plates, bars, structural shapes, sheets, tin plate, wire and wire products on a Pittsburgh base price plus an amount equivalent to the freight rate from Pittsburgh to destination. The commission finds that this practice is contrary to the public interest and an unfair method of competition which "adds unnecessary millions to the cost of steel products."

To Conduct Research in Wood Preservation

An industrial fellowship on timber treatment has been established at the Mellon Institute of Industrial Research of the University of Pittsburgh, according to the director, E. R. Weidlein. This fellowship, which will be sustained by the Grasselli Chemical Company, Cleveland, Ohio, has for its purpose the pursuit of studies looking to the improvement of methods of applying zinc chloride in the wood preservation industry. The research work will be carried out under the supervision of Dr. A. M. Howald and for the present will embrace the continuation of investigations begun during 1923 on the development of a method of increasing the permanence of zinc chloride treatment of timber by the addition of petroleum oil. An experimental wood impregnating plant is maintained at the university for practical tests of processes.

Highway Crossing Collision—Engineman's Widow Awarded Damages from Truck Owner

A verdict has been won by a locomotive engineman's widow in the Ohio courts against the owner of a truck which was struck by a train on a crossing. The verdict was won by Mrs. Molly Egle, widow of John Egle, a New York Central engineman, who while operating a northbound passenger train on the Toledo division of the road, on August 22, 1922, was killed at the Dixie Highway crossing, at Rockwood, Michigan. A three-ton truck and a five-ton trailer containing barrels of turpentine, was struck on the crossing. It was owned by William J. Leidner and Charles O. Anderson. Leidner was driving. Mrs. Egle brought suit against Anderson to recover damages for her husband's death, Leidner having been killed in the collision.

The case was tried in the Court of Common Pleas, at Toledo, Ohio, and the verdict of the jury on June 26 awarded Mrs. Egle \$5,000 damages.

The truck was hauling turpentine from Detroit to Toledo in competition with the railroads. The testimony was to the effect that Leidner, the driver, did not take reasonable precautions for safety. The collision set fire to the turpentine and caused an explosion of some of the barrels. Flames from the burn-

ing liquid enveloped the locomotive and the debris of the truck and trailer, causing the death of Engineman Egle, Fireman Webb and the driver, Leidner.

The family of Fireman Webb has also instituted a suit to recover damages from the surviving partner, Anderson, as has also the New York Central Railroad to recover for property damages.

N. Y. C. Veterans' Summer Home

The New York Central Veterans' Association has bought a camp at Lake Placid, N. Y., consisting of 35 acres of land and 14 buildings and is putting the buildings and facilities in order for use the present summer, as a vacation resort for the members of the association. Lake Placid is in the Adirondack Mountains,

about 125 miles north of Utica, and is a noted resort in winter as well as in summer. The buildings and improvements on the grounds represent a cost of \$125,000 but the whole establishment has been bought at an attractive price.

The privileges of the camp are primarily for members of the Veterans' Association but other employees of the railroad will probably be admitted at a small advance in the rates over those charged to members, the purpose being to make the fullest possible use of the facilities. The nine principal buildings, after some slight alterations, will accommodate 125 guests. The Veterans' Association now numbers about 1,000 members. The president is William O. Wichman, locomotive engineman; secretary, J. M. Wooldridge, a chief clerk in the legal department, New York City. Employees of the road are eligible to membership after 20 years' service, 15 years of which must have been continuous.

OPERATING REVENUES AND OPERATING EXPENSES OF CLASS I STEAM ROADS IN THE UNITED STATES

(FOR 194 STEAM ROADS, INCLUDING 16 SWITCHING AND TERMINAL COMPANIES)

FOR THE MONTH OF MAY, 1924 AND 1923

Item	United States		Eastern District		Pocahontas Region		Southern Region		Western District	
	1924	1923	1924	1923	1924	1923	1924	1923	1924	1923
Average number of miles operated	236,015.31	235,695.22	59,513.83	59,324.79	5,461.87	5,448.92	38,334.33	38,440.60	132,705.28	132,480.91
Revenues—										
Freight	\$344,711,378	\$405,462,107	\$156,302,277	\$199,769,267	\$15,042,487	\$16,912,743	\$47,937,806	\$51,951,163	\$125,428,808	\$136,828,934
Passenger	85,605,795	889,986,308	41,952,786	42,966,603	1,997,642	2,172,297	11,416,665	12,068,307	30,238,702	32,779,101
Mail	8,284,843	7,662,739	3,138,097	2,887,630	235,971	182,929	1,178,899	1,101,277	3,731,876	3,490,903
Express	12,396,464	15,145,221	5,430,768	6,834,760	276,155	315,367	2,009,746	2,048,536	4,679,795	5,946,558
All other transportation ..	15,853,443	17,584,902	9,274,793	10,554,493	180,787	203,464	889,376	944,152	5,508,487	5,882,793
Incidental	10,032,954	11,680,353	5,289,987	6,326,105	331,250	388,580	1,045,465	1,181,912	3,366,252	3,783,756
Joint facility—Cr.	782,832	813,850	344,926	365,869	12,666	10,556	123,318	137,854	301,922	299,571
Joint facility—Dr.	230,098	222,564	122,614	119,834	1,622	8,260	29,503	32,292	76,359	62,178
Ry. operating revenues	477,437,611	548,112,916	221,611,020	269,584,893	18,075,356	20,177,676	64,571,772	69,400,909	173,179,483	188,949,438
Expenses—										
Maintenance of way and structures	73,758,663	74,647,956	28,800,797	31,023,680	2,717,192	2,407,213	9,310,245	9,705,755	32,930,429	31,511,308
Maintenance of equipment ..	104,939,079	125,687,122	49,433,266	63,645,733	4,518,110	5,181,683	13,465,007	14,772,131	37,522,696	42,087,575
Traffic	8,494,519	7,855,382	3,156,031	2,879,508	207,511	185,385	1,429,917	1,398,850	3,701,060	3,391,639
Miscellaneous operations ..	177,139,688	196,436,637	84,686,325	96,112,798	5,627,237	6,378,690	23,721,781	25,511,596	63,104,345	68,433,553
General	4,092,256	4,121,760	1,986,747	2,013,305	90,418	86,439	389,739	408,798	1,625,352	1,613,218
Transportation for investment—Cr.	1,322,491	828,210	299,813	97,699	39,614	14,316	117,153	97,111	866,511	619,084
Ry. operating expenses	381,402,122	421,389,901	173,933,839	201,657,368	13,556,599	14,628,664	50,070,707	53,481,552	143,840,977	151,622,317
Net revenue from railway operations	96,035,489	126,723,015	47,677,181	67,927,525	4,518,737	5,549,012	14,501,065	15,919,357	29,338,506	37,327,121
Railway tax accruals	27,949,431	28,161,119	12,032,353	12,145,845	1,195,391	943,630	3,328,309	3,353,456	11,393,378	11,718,188
Uncollectible railway revenues	250,887	121,273	154,600	68,597	3,539	4,940	19,136	9,889	73,612	37,847
Ry. operating income	67,835,171	98,440,623	35,490,228	55,713,083	3,319,807	4,600,442	11,153,620	12,556,012	17,871,516	25,571,086
Equipment rents—Dr. balance	5,375,288	6,316,474	3,877,175	4,931,276	262,175	411,696	543,007	1,090,358	1,217,281	706,530
Joint facility rent—Dr. balance	1,806,006	1,803,276	891,668	1,027,367	84,732	114,161	98,611	125,210	730,995	536,538
Net railway operating income	60,653,877	90,320,873	30,721,385	49,754,440	3,497,250	4,897,971	10,512,002	11,340,444	15,923,240	24,328,018
Ratio of expenses to revenues (per cent)	79.89	76.88	78.49	74.80	75.00	72.50	77.54	77.06	83.06	80.24

FOR FIVE MONTHS ENDED WITH MAY, 1924 AND 1923

Average number of miles operated	235,962.55	235,802.87	59,487.48	59,325.91	5,459.26	5,448.48	38,334.77	38,437.40	132,681.04	132,591.08
Revenues—										
Freight	1,745,157,087	1,884,404,999	800,696,725	897,094,868	78,751,310	75,860,537	245,910,290	256,233,531	619,798,762	655,216,063
Passenger	433,040,580	436,340,512	204,980,543	205,661,793	10,173,790	10,419,453	63,730,087	63,118,608	154,156,160	157,140,658
Mail	40,207,764	37,912,730	15,463,541	14,263,562	1,020,497	880,153	5,696,471	5,374,604	18,027,253	17,394,411
Express	59,054,312	64,258,283	26,161,942	30,751,023	1,319,541	1,497,148	8,820,233	7,897,248	22,752,596	24,112,864
All other transportation ..	78,068,150	80,227,997	45,160,715	47,137,453	895,051	906,238	4,501,349	4,688,473	27,511,035	27,495,833
Incidental	47,142,994	51,283,384	24,317,772	28,216,410	1,669,884	1,717,456	5,721,237	5,682,114	15,434,101	15,667,404
Joint facility—Cr.	4,491,921	4,153,850	1,755,385	1,895,796	72,514	66,278	649,415	699,448	2,014,607	1,492,328
Joint facility—Dr.	1,065,499	1,156,851	541,657	610,919	10,031	21,325	155,258	155,072	358,553	369,535
Ry. operating revenues	2,406,097,309	2,557,424,904	1,117,994,966	1,224,409,986	93,892,556	91,325,938	334,873,824	343,538,954	859,335,963	898,150,026
Expenses—										
Maintenance of way and structures	311,125,741	298,516,687	127,153,280	124,859,275	13,315,573	10,665,965	44,941,899	43,926,510	125,714,989	119,064,937
Maintenance of equipment ..	543,041,642	606,851,462	262,440,535	302,783,492	23,465,919	23,567,750	67,620,870	71,222,346	189,514,318	209,277,874
Traffic	40,446,776	37,920,472	15,193,552	13,965,750	1,005,057	923,738	7,228,373	7,022,562	17,019,794	16,008,422
Transportation	929,443,011	1,002,375,147	446,642,398	491,711,636	30,528,430	31,318,477	123,618,004	128,249,201	328,654,179	351,095,833
Miscellaneous operations ..	20,159,223	20,001,658	9,761,813	9,992,613	436,177	420,497	2,218,581	2,013,004	7,742,652	7,575,544
General	70,636,111	66,626,657	31,267,979	29,718,445	2,148,531	1,984,429	9,133,081	8,731,821	28,086,520	26,191,962
Transportation for investment—Cr.	5,193,289	3,420,326	828,808	314,810	123,459	53,920	608,437	476,181	3,632,585	2,575,415
Ry. operating expenses	1,909,659,215	2,028,871,757	891,630,749	972,716,401	70,776,228	68,826,936	254,152,371	260,689,263	693,099,867	726,639,157
Net revenue from railway operations	496,438,094	528,553,147	226,364,217	251,693,585	23,116,328	22,499,002	80,721,453	82,849,691	166,236,096	171,510,869
Railway tax accruals	134,057,888	132,425,751	54,801,986	53,737,516	5,885,483	4,700,562	17,036,290	16,774,374	56,334,129	57,213,299
Uncollectible railway revenues	940,794	687,801	453,148	325,309	14,073	41,968	78,603	56,087	394,970	264,437
Ry. operating income	361,439,412	395,439,595	171,109,083	197,630,760	17,216,772	17,756,472	63,606,560	66,019,230	109,506,997	114,033,133
Equipment rents—Dr. balance	27,846,904	28,440,437	18,626,416	22,237,309	41,321	42,377,862	3,061,978	4,623,294	7,701,831	3,957,696
Joint facility rent—Dr. balance	8,137,618	8,424,691	3,874,983	4,286,831	502,945	470,761	416,565	330,712	3,343,125	3,336,387
Net railway operating income	325,454,890	358,574,467	148,607,684	171,106,620	18,257,148	19,663,573	60,128,017	61,065,224	98,462,041	106,739,050
Ratio of expenses to revenues (per cent)	79.37	79.33	79.75	79.44	75.38	75.36	75.89	75.88	80.66	80.90

a Includes \$2,923,539 sleeping and parlor car surcharge.

b Includes \$2,863,329 sleeping and parlor car surcharge.

d Deficit or other reverse items.

c Includes \$14,360,576 sleeping and parlor car surcharge.

e Includes \$13,961,265 sleeping and parlor car surcharge.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Freight Operating Statistics of Large Steam Roads—Selected Items for May, 1924,

Region, road and year	Average miles of road operated	Train-miles	Locomotive-miles		Car-miles		Ton-miles (thousands)		Average number of locomotives on line daily					
			Principal and helper	Light	Loaded (thousands)	Per cent loaded	Gross. Excluding locomotive and tender	Net. Revenue and non-revenue	Service-able	Un-service-able	Per cent un-service-able	Stored		
New England Region:														
Boston & Albany.....1924	394	260,766	276,674	27,003	5,124	66.8	263,972	98,532	124	18	12.8	...		
1923	394	351,363	378,471	38,943	6,984	66.1	385,901	163,683	118	26	17.7	...		
Boston & Maine.....1924	2,455	519,411	586,828	59,681	12,456	71.3	618,617	251,400	344	128	27.1	37		
1923	2,455	678,131	762,604	71,288	14,868	69.1	787,794	331,705	328	138	29.5	...		
N. Y., New H. & Hartf.....1924	1,960	471,401	502,732	28,124	12,832	70.6	651,197	266,693	308	67	17.9	33		
1923	1,974	560,309	598,508	36,767	13,215	68.1	699,433	298,807	298	100	25.1	...		
Great Lakes Region:														
Delaware & Hudson.....1924	888	361,450	486,836	44,762	10,142	66.7	619,043	306,059	263	33	11.2	85		
1923	886	411,824	582,403	50,419	11,448	68.7	740,287	393,198	234	62	21.1	11		
Del., Lack. & Western....1924	993	570,127	666,128	92,969	17,961	67.7	985,623	440,368	301	66	18.1	27		
1923	993	583,521	705,670	109,826	18,369	67.1	1,030,425	474,781	289	73	20.1	5		
Erie (inc. Chi. & Erie)....1924	2,325	934,599	1,038,036	103,795	33,875	64.9	2,061,514	937,209	663	94	12.5	189		
1923	2,309	1,066,898	1,217,018	63,054	38,005	70.2	2,228,503	1,077,284	654	146	18.2	90		
Lehigh Valley .....1924	1,357	630,654	693,191	73,397	18,131	64.8	1,094,920	509,066	471	81	14.7	115		
1923	1,317	624,056	692,744	78,360	18,028	68.0	1,078,960	533,624	321	221	40.8	6		
Michigan Central .....1924	1,827	547,848	564,377	22,780	17,796	63.4	954,918	351,487	287	61	17.6	76		
1923	1,827	635,553	649,909	23,887	21,344	68.1	1,119,847	459,552	305	93	23.3	10		
New York Central.....1924	6,447	1,925,018	2,170,089	146,949	71,319	63.9	4,147,421	1,792,299	1,227	411	25.1	413		
1923	6,469	2,563,258	2,933,950	213,059	92,903	63.1	5,686,894	2,612,809	1,296	438	25.3	179		
New York, Chi. & St. L....1924	1,669	648,878	663,619	3,682	19,312	63.7	1,058,740	405,043	250	53	17.4	49		
1923	1,669	744,648	755,160	4,384	20,873	68.1	1,125,959	472,102	207	78	27.3	5		
Pere Marquette .....1924	2,227	362,137	377,897	9,892	9,457	67.2	529,133	238,887	187	25	11.6	25		
1923	2,182	404,549	421,362	8,330	10,864	71.4	577,781	279,952	164	44	21.1	2		
Pitts. & Lake Erie.....1924	231	111,525	114,754	649	3,846	64.6	293,247	174,963	63	25	28.8	15		
1923	231	209,867	213,574	1,115	7,018	62.0	537,073	314,714	69	14	16.5	...		
Wabash .....1924	2,459	615,640	640,791	9,562	19,085	67.9	1,029,170	412,230	296	58	16.3	28		
1923	2,418	620,754	653,144	7,487	19,027	74.1	975,012	414,436	252	83	24.9	...		
Central Eastern Region:														
Baltimore & Ohio.....1924	5,207	1,800,559	2,050,885	164,233	50,632	63.7	3,138,511	1,507,593	1,053	286	21.4	229		
1923	5,212	2,346,831	2,703,053	163,484	62,605	64.3	3,992,231	2,020,367	1,048	241	18.7	13		
Central of New Jersey....1924	692	280,145	309,783	38,970	7,189	61.4	457,002	218,894	245	33	11.8	45		
1923	695	317,667	345,718	41,973	7,400	62.5	482,626	238,320	204	67	24.8	1		
Chicago & Eastern Ill....1924	945	207,489	208,690	2,475	5,454	65.7	312,934	147,128	124	41	24.7	45		
1923	945	234,430	236,461	3,661	6,085	66.5	346,280	167,459	117	54	31.4	21		
Cleve., Cin., Chic. & St. L.1924	2,379	668,547	705,807	14,331	20,128	60.3	1,276,911	587,584	325	99	23.4	53		
1923	2,377	714,710	756,046	6,181	23,187	66.5	1,413,001	695,672	343	96	21.9	39		
Elgin, Joliet & Eastern....1924	460	102,830	109,116	3,553	3,061	64.7	224,347	118,470	82	17	17.6	10		
1923	460	151,016	166,542	7,879	4,475	65.0	346,899	188,230	86	16	15.3	...		
Long Island .....1924	393	50,114	52,306	10,041	635	57.5	38,732	14,972	44	13	22.9	...		
1923	393	51,513	61,387	9,746	626	56.9	38,966	15,187	40	14	25.2	...		
Pennsylvania System .....1924	10,942	4,413,611	4,746,360	330,732	122,438	64.6	7,854,971	3,701,206	2,754	743	21.2	432		
1923	10,883	5,314,109	5,862,542	462,506	142,566	63.4	9,656,443	4,814,312	2,639	711	21.2	2		
Rending .....1924	1,141	662,020	730,252	33,391	16,298	62.6	1,095,997	561,068	413	72	14.9	113		
1923	1,142	723,082	806,056	88,524	18,666	65.0	1,241,247	663,988	351	89	20.2	50		
Pocahontas Region:														
Chesapeake & Ohio.....1924	2,558	996,175	1,076,831	28,553	29,914	58.4	2,252,833	1,216,048	443	96	17.8	44		
1923	2,553	884,688	950,792	23,959	27,583	60.6	2,067,328	1,126,012	442	76	14.7	13		
Norfolk & Western.....1924	2,231	739,927	924,848	29,206	22,335	60.8	1,681,007	874,961	569	115	16.8	179		
1923	2,228	898,710	1,151,267	44,886	25,977	61.5	1,978,148	1,073,008	531	171	24.4	40		
Southern Region:														
Atlantic Coast Line.....1924	4,865	890,280	899,570	14,698	21,919	62.7	1,142,502	431,900	393	56	12.6	33		
1923	4,860	839,024	845,736	15,453	20,633	64.4	1,065,998	413,998	324	92	22.1	7		
Central of Georgia.....1924	1,907	309,092	310,057	5,215	6,484	70.3	343,322	152,454	140	19	11.9	9		
1923	1,907	301,762	304,703	4,172	6,185	73.5	325,100	153,755	109	23	17.3	...		
Ill. Cent. (inc. Y. & M. V.) 1924	6,197	1,742,917	1,753,315	39,072	47,729	62.6	2,886,003	1,154,974	749	146	16.3	64		
1923	6,190	2,138,404	2,152,973	45,489	57,883	64.8	3,548,013	1,588,682	763	94	10.9	3		
Louisville & Nashville....1924	5,026	1,753,985	1,858,287	67,141	31,553	61.2	2,023,673	938,407	625	94	13.0	50		
1923	5,024	1,798,028	1,911,019	68,953	32,267	61.1	2,110,811	1,008,559	583	114	16.3	...		
Seaboard Air Line.....1924	3,547	555,711	565,997	7,181	12,969	63.9	715,096	271,090	229	29	11.1	6		
1923	3,553	559,588	568,510	12,180	12,785	66.1	681,477	267,207	205	52	20.2	...		
Southern Ry. ....1924	6,820	1,508,403	1,539,753	33,018	33,702	65.4	1,863,542	749,568	850	117	12.1	15		
1923	6,942	1,679,042	1,732,009	40,396	36,352	66.0	2,000,807	863,971	890	153	14.7	1		
Northwestern Region:														
Chic. & North Western....1924	8,463	1,447,765	1,485,347	18,910	32,596	61.4	1,864,220	747,821	820	237	22.5	91		
1923	8,463	1,640,629	1,709,704	25,489	37,531	64.5	2,127,824	930,140	887	210	19.2	11		
Chic., Milw. & St. Paul...1924	10,983	1,387,898	1,433,508	61,670	39,590	67.6	2,165,878	964,041	942	174	15.6	133		
1923	11,007	1,722,909	1,775,548	71,868	44,001	63.8	2,481,213	1,088,900	859	197	18.7	29		
Chic., St. P., Minn. & Om.1924	1,726	305,157	329,934	13,222	5,895	68.6	315,432	131,479	175	31	15.2	1		
1923	1,726	313,482	334,437	13,141	6,084	68.4	319,025	131,917	161	49	23.2	11		
Great Northern .....1924	8,252	742,158	766,586	38,620	25,086	65.2	1,523,886	755,718	614	161	20.8	142		
1923	8,255	913,089	943,762	47,578	27,483	63.0	1,669,089	807,139	534	222	29.4	47		
Minn., St. P. & S. Ste. M.1924	4,374	497,707	507,147	6,317	11,676	66.1	615,758	270,552	287	56	16.3	15		
1923	4,374	541,716	550,670	10,546	13,012	72.2	667,697	317,302	289	54	15.7	5		
Northern Pacific .....1924	6,415	1,701,929	1,739,744	38,836	22,311	73.8	1,180,165	545,759	553	150	21.3	116		
1923	6,415	810,968	847,661	51,044	23,701	66.3	1,340,524	604,586	527	167	24.0	26		
Oreg.-Wash. R. R. & Nav.1924	2,179	200,590	209,553	16,962	5,257	73.2	286,954	134,117	141	23	14.1	21		
1923	2,186	214,592	228,826	21,660	5,342	68.8	295,992	135,129	146	29	16.4	12		
Central Western Region:														

Compared with May, 1923, for Roads with Annual Operating Revenues above \$25,000,000.

Average number of freight cars on line daily						Gross tons per train, excluding locomotive and tender	Net tons per train	Net tons per loaded car	Net ton- miles per car-day	Car miles per car-day	Net ton- miles per mile of road per day	Pounds of coal per 1,000 gross ton-miles including locomotive and tender	Locomo- tive miles per locomotive day	
Region, road and year	Home	Foreign	Total	Per cent un- service- able	Stored									
New England Region:														
Boston & Albany.....1924	2,442	5,091	7,533	5.3	....	1,012	379	19.2	422	32.8	8,069	194	68.6
1923	1,608	9,026	10,634	3.2	....	1,098	466	23.4	497	32.0	13,404	184	93.7
Boston & Maine.....1924	14,445	14,546	28,991	11.3	....	1,191	484	20.2	280	19.4	3,303	154	44.3
1923	12,506	26,792	39,298	9.3	....	1,162	489	22.3	272	17.7	4,358	173	57.7
N. Y., New H. & Hartf..1924	21,256	16,378	37,634	19.8	....	1,381	566	20.8	229	15.6	4,389	143	45.6
1923	17,488	30,396	47,884	15.0	....	1,248	533	22.6	201	13.1	4,883	175	51.6
Great Lakes Region:														
Delaware & Hudson.....1924	9,994	6,146	16,140	5.8	183	1,713	847	30.2	612	30.4	11,118	182	57.9	
1923	8,420	9,851	18,271	7.8	....	1,798	955	34.3	694	29.4	14,310	195	69.0
Del., Lack. & Western....1924	17,622	8,257	25,879	3.8	380	1,729	772	24.5	549	33.1	14,312	164	66.7	
1923	12,795	13,292	26,087	3.9	....	1,766	814	25.9	587	33.7	15,423	184	72.6
Erie (inc. Chi. & Erie)....1924	37,781	17,401	55,182	6.2	12,093	2,206	1,003	27.7	548	30.5	13,004	124	48.7	
1923	22,932	32,717	55,649	9.5	....	2,089	1,010	28.3	624	31.4	15,048	135	51.6
Lehigh Valley .....1924	23,674	8,795	32,469	6.2	756	1,736	807	28.1	506	27.8	12,105	156	44.7	
1923	19,731	17,559	37,290	5.4	....	1,729	855	29.6	462	22.9	13,072	169	45.9
Michigan Central .....1924	15,715	12,849	28,564	5.5	1,528	1,743	642	19.8	397	31.7	6,207	125	54.3	
1923	9,064	23,764	32,828	7.2	....	1,762	723	21.5	452	30.8	8,116	120	54.6
New York Central.....1924	70,460	69,864	140,324	4.8	27,935	2,155	931	25.1	412	25.7	8,968	117	45.6	
1923	57,555	105,201	162,756	9.4	....	2,219	1,019	28.1	518	29.2	13,030	118	58.6
New York, Chi. & St. L..1924	12,743	10,269	23,012	5.7	1,623	1,632	624	21.0	568	42.5	7,830	119	71.1	
1923	3,627	16,528	20,155	8.5	....	1,512	634	22.6	756	49.1	9,126	136	86.1
Pere Marquette .....1924	10,385	9,607	19,992	4.8	1,785	1,461	660	25.3	386	22.7	3,460	120	59.1	
1923	6,557	20,469	27,026	4.2	....	1,428	692	25.8	334	18.2	4,139	129	66.6
Pitts. & Lake Erie.....1924	15,099	8,045	23,144	4.3	4,641	2,629	1,569	45.5	244	8.3	24,411	70	42.2	
1923	8,181	15,161	23,342	16.3	....	2,559	1,500	44.8	435	15.6	43,908	74	83.4
Wabash .....1924	13,887	9,206	23,093	3.0	920	1,672	670	21.6	576	39.3	5,407	143	59.3	
1923	7,575	12,982	20,557	3.3	....	1,571	668	21.8	638	39.5	5,529	143	63.6
Central Eastern Region:														
Baltimore & Ohio.....1924	73,028	32,230	105,258	8.6	11,752	1,743	837	29.8	462	24.4	9,340	168	53.4	
1923	49,140	53,653	102,793	5.8	....	1,701	861	32.3	634	30.6	12,504	178	71.7
Central of New Jersey....1924	18,591	10,652	29,243	5.1	3,541	1,631	781	30.4	241	12.9	10,204	173	40.5	
1923	12,352	15,697	28,049	9.2	....	1,517	750	32.2	274	13.6	11,068	194	46.1
Chicago & Eastern Ill....1924	16,751	3,951	20,702	14.8	6,707	1,508	709	27.0	229	12.9	5,021	159	41.3	
1923	11,060	5,662	16,722	21.0	....	1,477	714	27.5	323	17.7	5,716	191	45.4
Cleve., Cin., Chic. & St. L..1924	16,574	17,601	34,175	6.2	3,848	1,910	879	29.2	555	31.5	7,967	123	54.7	
1923	9,536	23,841	33,377	5.9	....	1,977	973	30.0	672	33.7	9,443	130	55.9
Elgin, Joliet & Eastern ¹ ..1924	10,388	5,645	16,033	6.5	706	2,182	1,152	38.7	238	9.5	8,312	125	36.7	
1923	8,408	8,887	17,295	6.9	....	2,297	1,246	42.1	351	12.8	13,208	125	55.2
Long Island .....1924	1,755	5,747	7,502	1.1	106	773	299	23.6	64	4.8	1,228	308	35.2	
1923	1,349	6,458	7,807	2.8	....	756	295	24.3	63	4.5	1,246	330	42.6
Pennsylvania System .....1924	209,103	94,738	303,841	9.4	60,329	1,780	839	30.2	393	20.1	10,912	135	46.8	
1923	156,295	129,003	285,298	5.4	698	1,817	906	33.8	544	25.4	14,270	144	60.9	
Reading .....1924	24,316	14,504	38,820	3.0	5,534	1,656	848	34.4	466	21.6	15,856	170	53.5	
1923	14,641	23,381	38,022	4.3	....	1,717	918	35.6	563	24.4	18,753	174	65.6
Pocahontas Region:														
Chesapeake & Ohio.....1924	29,448	11,794	41,242	5.5	6,043	2,162	1,221	40.7	951	40.0	15,335	121	66.2	
1923	28,170	17,427	45,597	8.7	....	2,337	1,273	40.8	797	32.2	14,228	124	60.7
Norfolk & Western.....1924	28,560	8,577	37,137	3.7	2,630	2,272	1,182	39.2	760	31.9	12,652	166	45.0	
1923	25,301	13,753	39,054	5.1	....	2,201	1,194	41.3	886	34.9	15,537	186	54.9
Southern Region:														
Atlantic Coast Line.....1924	21,566	12,506	34,072	4.8	....	1,283	485	19.7	409	33.1	2,864	121	65.7
1923	15,193	15,729	30,922	9.8	....	1,271	493	20.1	432	33.4	2,748	130	66.8
Central of Georgia.....1924	4,964	3,868	8,832	6.6	....	1,110	493	23.5	557	33.7	2,579	148	64.0
1923	2,015	6,127	8,142	7.2	....	1,077	510	24.9	609	33.3	2,601	169	75.5
Ill. Cent. (inc. Y. & M. V.)1924	47,781	19,663	67,444	5.5	2,547	1,656	663	24.2	552	36.5	6,012	134	64.6	
1923	30,882	38,673	69,555	6.8	1,033	1,659	743	27.4	737	41.4	8,279	145	82.8	
Louisville & Nashville....1924	44,928	17,536	62,464	8.7	112	1,194	535	29.7	485	26.6	6,023	163	86.4	
1923	26,972	26,770	53,742	14.4	55	1,174	561	31.3	605	31.7	6,476	177	91.6	
Seaboard Air Line.....1924	10,219	8,177	18,396	7.7	....	1,287	488	20.9	475	35.6	2,466	135	71.9
1923	9,632	12,052	21,684	21.9	....	1,218	478	20.9	398	28.8	2,426	155	73.1
Southern Ry. ....1924	38,507	19,898	58,405	5.9	....	1,235	497	22.2	414	28.4	3,545	171	52.4
1923	25,652	35,485	61,137	9.7	....	1,192	515	23.8	456	29.1	4,015	198	54.8
Northwestern Region:														
Chic. & North Western....1924	48,977	24,249	73,226	9.1	....	1,288	517	22.9	329	23.3	2,850	153	45.9
1923	37,756	38,454	76,210	7.2	....	1,297	567	24.8	394	24.6	3,546	154	51.0
Chic., Milw. & St. Paul...1924	54,556	21,143	75,699	6.7	....	1,561	695	24.4	411	25.0	2,832	144	43.2
1923	39,823	37,508	77,331	9.0	....	1,440	632	24.7	454	28.8	3,191	154	56.4
Chic., St. P., Minn. & Om.1924	3,457	8,567	12,024	8.3	589	1,034	431	22.3	353	23.1	2,457	143	53.8	
1923	2,514	8,901	11,415	10.7	93	1,018	421	21.7	373	25.1	2,465	169	53.5	
Great Northern .....1924	46,463	6,424	52,887	7.4	....	2,053	1,018	30.1	461	23.5	2,954	126	33.5
1923	38,715	11,034	49,749	9.4	....	1,828	884	29.4	523	28.3	3,154	141	42.3
M., St. P. & S. Ste. M....1924	18,990	5,989	24,979	7.6	1,496	1,237	544	23.2	349	22.8	1,995	115	48.3	
1923	15,314	9,581	24,895	8.0	142	1,233	586	24.4	411	23.4	2,340	112	52.8	
Northern Pacific .....1924	34,575	7,880	42,455	7.4	1,817	1,660	768	24.5	415	23.0	2,744	120	35.7	
1923	26,859	11,601	38,460	11.2	....	1,653	746	25.5	507	30.0	3,040	128	41.8
Oreg.-Wash. R. R. & Nav..1924	5,075	4,345	9,420	4.0	....	1,431	669	25.5	459	24.6	1,985	181	44.5
1923	5,509	4,627	10,136	4.6	....	1,379	630	25.3	430	24.7	1,994	207	46.4
Central Western Region:														
Atch., Top. & S. Fe.....1924	56,658	14,971	71,629	7.1	16,286	1,647	611	21.4	416	30.2	3,010	129	56.8	
1923	43,161	21,539	64,700	7.6	8,060	1,532	573	21.1	503	35.9	3,299	149	67.7	
Chicago & Alton.....1924	10,312	4,908	15,220	3.1	4,000	1,424	586	24.9	400	25.6	6,030	148	68.7	
1923														

Inspection Bureau Finds 46.9

Per Cent of Locomotives Defective

The Interstate Commerce Commission's monthly report to the President on the condition of railroad equipment shows 5,675 locomotives inspected by the Bureau of Locomotive Inspection during the month of June, of which 2,662 or 46.9 per cent, were found defective and 279 were ordered out of service. The Bureau of Safety inspected 99,722 freight cars, of which 4,207 were found defective, and 1,612 passenger cars, of which 67 were found defective. During the month 18 cases, involving 124 violations of the safety appliance acts, were transmitted to various United States attorneys for prosecution.

National Motor Truck Show

"Motor Truck Industries," headquarters 120 Madison avenue, Detroit, Mich., an association of leading manufacturers of automobile trucks, announces that in Chicago, October 21 to 27, there will be held the first national motor transportation show. Large numbers of manufacturers have already taken space and non-members are to be invited to exhibit. Heretofore the truck manufacturers have exhibited only in exhibitions combined with those of passenger cars. It is planned to restrict admission to the show to persons definitely interested in motor truck transportation, and tickets are to be made available through manufacturers and automobile dealers; owners of fleets of trucks and owners of bus lines. Demonstrations will be held daily in a large field adjacent to the exposition building, which is the American Exposition Palace, on Lake Shore Drive.

I. C. C. Adopts Interpretation of

Automatic Train Control Specification

The Interstate Commerce Commission on July 22 announced that Division I of the commission, Commissioner McManamy dissenting, had approved an addition to sub-paragraph b of paragraph 2, under the heading "Functions" in the commission's specification and requirements for automatic train control as published in June, 1922, and January, 1924, to the effect that "consistent practice requires definite acknowledgment by the engineman at each signal indicating 'stop.'"

Sub-paragraph b of the specification as published reads as follows: "(b) Low-speed restriction, automatic brake application under control of the engineman who may, if alert, forestall application at a stop indication point or when entering a danger zone and proceed under the prescribed speed limit until the apparatus is automatically restored to normal or clear condition by reason of the removal of the condition which caused the low-speed restriction."

Accident Fails to Delay Motor Train

The Sykes two-car gasoline motor train which made a trip of 1,250 miles from Oelwein, Iowa, to Atlantic City, N. J., via Chicago and the Baltimore & Ohio, as reported on page 1479 of the *Daily Railway Age* for June 15, met with an accident on the return trip, which sheds interesting light on its construction as it was possible to make temporary repairs during the night, when no run was scheduled, allowing the train to reach its destination under its own power without loss of time. It will be recalled that this train had already made 50,000 miles in regular service on the Chicago Great Western before being sent east. It is driven by a Sterling six-cylinder gasoline motor developing 240 hp. at 1,700 r.p.m., and transmitting power through propeller shafts to both the front and rear axles. While traveling west on the Baltimore & Ohio, near Cumberland, Md., one of the axles of the forward truck broke, due to defective material, necessitating the removal of the truck. In order to continue the trip as scheduled, one of the trailer car trucks was substituted for the defective truck on the motor car but it could not be arranged to receive power and the trip was continued by using power on the rear truck only. A standard wrecking truck was procured from the B. & O. and placed under the trailer car in place of the one transferred to the motor car, this double transfer being required because the motor-car brake connections would not fit the wrecking truck. Under this handicap the run from Youngstown, Ohio, to Chicago on the Erie, a distance of slightly over 400 miles, was made in 10 hours actual running time. The schedule of Erie train No. 3 was maintained or exceeded over practically the entire distance. The

significant fact in this connection was that the gasoline motor equipment design permitted the use of a standard railroad wrecking truck to prevent a train delay.

A Letter from "Hank," Who

Went West to Find Work

DEAR HI:

I hev looked around quite a bit and think I will go to work on the railroad as a brakeman, this looks like a good job and the pay is good, the funniest thing tho is the way they are paid. When I was thinkin of going to work I asked the superintendent what the pay would be for a month's work and he said he was busy then but if I would come back for two or three days next week he would have a couple of clerks figger it out for me. I asked one of the boys who was workin how it wuz and he explained it to me but as you dont no nothing about railroading I will tell you how it would work out if you were paid that way for plowing which you no more about.

It would be this way. You would be paid four dollars a day for plowing or two dollars an acre which ever way give you the most money and if you ploud your two akers by noon you would get a days pay any way and would not haft to work in the afternoon or if you worked and made another two ackers you would get two days pay for the days work. You would get a half hour extra for harnessing the mules in the morning and if you have to go up hill and down hill you get some extra pay more than if the land was level, also if you have to turn around more than three stumps in a day you get extra pay and if it takes you more than five minutes to turn a corner [over and above what] it would with the team you used to have you would get extra pay for that. If you plowed part of the day and harrowed the rest you would get extra pay becuz it was a different class of servuce and if the plow broke down or a mule got sick with the flu you would get payde for your akers or hours whichever wuz the most up to the place of the accident to the mule or the plow whichever it wuz and then you would get payd for the time you was wateing for the plow or mule to get well or changed for another one at the rait per hour and then when you started plowin again you would be paid by the hour or aker whichever was the most agin, bearing in mind going up hill, down hill and turning corners dodgin stumps and sech like as I have mentioned. Sometimes you don't do a good job and haft to double back and plow a furro over again, you would get paid a minimum of ten minutes for this, then when you quit at nite if some other fellow wuz ahead of you at the watering trough and you have to wait five minutes to water the mules you would get extra time for that which is called detension.

Yours in haiste,

HANK.

Parliament Rejects Hudson Bay

Railway Completion by 78 to 20

As an evidence of the determination of the Progressive party, representing Western Canada, to get an early completion of the Hudson Bay Railway, with a view to using that road to ship Western grain to Liverpool from the end of that road through Hudson Bay and Strait, Andrew Knox, one of their party, started a debate in the Canadian House of Commons at two o'clock in the morning of Thursday last week and it was 7:30 that morning that the House adjourned after discussing the question for five hours and when many members were asleep and later awakened in time to vote. The result of the House vote on the Hudson Bay Railway question was 78 against to 20 for, the latter consisting entirely of Progressives, while some Progressives voted with the Liberal Government and the Conservatives, or what remnant of those parties was in the House at voting time.

In winding up the debate about 7 Thursday morning, Hon. George P. Graham, Minister of Railways and Canals, reminded the House that he signed the first contract for the construction of that Hudson Bay line and turned the first sod in connection with that work. "As to the project itself," said Mr. Graham, "someone will build the Hudson Bay Railway—and I am not going to argue the question of navigation and all that sort of thing. I have said time and again that the construction of the railway as a colonization road will open up a territory which will be valuable in that respect. Even if the transportation end were left out altogether. We

must recognize that we are in a practical world, and my hon. friend should remember that governments do not grant money; parliaments do. You cannot get parliament to vote money unless you go at it the right way, by trying to educate members who do not agree with you; don't abuse them. If parliament is not in a frame of mind to vote the money, you must adhere to the project until you see it forced to a conclusion; but I think every member will agree with me that parliament as now constituted is not prepared to vote money for the completion of the Hudson Bay railway. That is plain on the face of it, and we must take that fact into consideration."

The reason for the overwhelming defeat of the Knox motion was that the government treated it as virtually a want of confidence vote. There were many speakers in the debate, the Western members making strong appeals for the road's early completion, while those opposed to its early completion and the uniting of the road with a scheme for ocean transportation to Europe pointed to the reports of experts showing that the scheme was not feasible. A small sum of money has been appropriated by the federal government toward keeping the line already built in repair so that when the steps are taken for the road's completion purely as a colonization road and a feeder for the Canadian National System, in Northern Manitoba and Saskatchewan, there will be a minimum of depreciation on the line already built. About \$15,000,000 has already been spent on the Hudson Bay Railway in the past few years. Pre-emption lands in Saskatchewan and Alberta have been sold for the purpose of raising funds for the building of the road and already \$28,000,000 has been raised, of which the above \$15,000,000 has actually been spent. Western Canada argues that their land has been sold to build the road and of that large residue of funds—\$13,000,000—sufficient should be used to finish the road without delay and establish terminal facilities at Port Nelson on Hudson Bay to provide for transshipment of grain to ocean vessels.

Parliament Votes \$56,000,000 for C. N. R.

George P. Graham, Minister of Railways and Canals, of Canada, succeeded late last week in getting final passage in the House of Commons of his estimates for the Canadian National Railways for the fiscal year ending March 31, 1925, and totalling \$56,000,000. In addition to this, an item of \$527,000 for various purposes was passed. A large amount of this last item is to carry out the removal of some level crossings in Toronto in connection with the Canadian Pacific, under an order of the Dominion Railway Board. Certain work this year is required in that connection. The whole work will cost \$1,750,000. The Canadian National's share of that will be about \$750,000, of which \$400,000 is for this year. Another \$100,000 of the \$527,000 is for carrying on the standardization of the gage of the Prince Edward Island Railway and for repairs at Charlottetown, the capital of that province.

Details of the main item of \$56,000,000, as given to the House by Mr. Graham, are as follows:

Statement of fixed charges and resources applicable thereto, together with summary of proposed capital expenditures required for year ending March 31, 1925:

Item	Amount
Rental for lease of subsidiary lines.....	\$1,979,228.64
Interest on funded and other debt.....	34,546,455.00
Grand Trunk Pacific guaranteed interest.....	1,662,120.00
Sinking fund payments.....	151,133.33
Equipment principal payments.....	6,856,400.00
Dividend on G. T. R. 4 per cent guaranteed stock..	2,433,333.33
Total financial requirements.....	\$47,628,670.30
Less: Resources	28,174,302.64
Net financial requirements.....	\$19,454,367.66
New equipment—series "H" \$12,500,000.....	4,609,375.00
General additions and betterments.....	25,958,257.34
Paris property	3,000,000.00
Ontario electric lines	1,500,000.00
Montreal Terminal Railway.....	1,278,000.00
Quebec Terminal	200,000.00
Total	\$56,000,000.00

The amount to be voted for new equipment is \$4,609,375. That is more than 25 per cent of the \$12,500,000 of the new equipment series "H," but it includes the interest for the first half year until the end of this fiscal year. It also includes an amount for sales tax, which is quite considerable. These items taken together, and the 25 per cent, make the \$4,609,375. The bond issue will be \$12,500,000, less 25 per cent.

In discussing this item, W. D. Euler, chairman of the House Committee on National Railways and Shipping, made a strong plea for keeping the Canadian National Railways out of politics, which plea was loudly applauded by the Progressives in the House.

Canadian Senate Passes 19 of 26

C. N. R. Branch Line Bills

After a drastic reduction in the proposed total expenditure, the Senate of Canada last week completed its work of revision of the Canadian National Railways branch line program. Out of the 26 bills submitted to the Upper House, after all of them had been passed by the House of Commons, 19 were approved by the Senate and 7 rejected. Those seven represented an estimated mileage of about 380 out of the total of 965 miles comprising the entire program, and a total estimated cost of over \$12,000,000 out of a total of \$28,300,000 for the 26 lines. The seven rejected with their mileage and estimated cost are: Guysboro, N. S., 67 miles, \$3,500,000; Rousseau-Laurent, Que., 17 miles, \$1,000,000; Turtleford, Sask., 102 miles, \$2,313,000; Kelvington, Sask., 13 miles, \$290,000; Radville, Sask., 115 miles, \$3,706,000; Nipawin, Sask., 17 miles, \$360,000; Lloydminster, Alta., 45 miles, \$1,170,000. In addition there was an amendment in the Senate to the bill providing for the construction of the Kingsclear, N. B., line, reducing the mileage from 41 to 14, thus compelling the Canadian National to get trackage rights over the Canadian Pacific to the Maine border. There was also an amendment to the bill for the short China Clay branch in Quebec, cutting down considerably the estimated cost per mile of that line.

As a result of this cutting of the Canadian National program by the Senate, there was staged in the House of Commons late last week, a strong attack upon the Senate by members from Western Canada, where the need of more branch lines to facilitate the marketing of grain is urgent. Charles C. Davies, one of the Progressive members from Saskatchewan, said among other things, "I would like to draw the attention of this House to a very serious situation which has arisen in Western Canada owing to the slaughtering of the long deferred hopes of many thousands of our worthy pioneers, many of whom have given the best part of their lives to building up our Western country. We are given to understand that through the action of some irresponsible body and just when the true representatives of the people had decided to give these people on the Western prairie the relief in the matter of branch line construction. . . ." At this juncture Mr. Davies was ruled out of order by the Speaker. Later in the evening he got on his feet again and added, "Whether that is an organized attempt or not to hamper the Canadian National Railways I do not know. But it is time for this House and this government to assert themselves, when the true representatives of the people say that such and such a thing shall be done that our Canadian National Railways shall benefit by the branch lines which we desire to build and which will produce more revenue, not only to allow those people to go into the country, but to save those who have already gone in from going out again. I say that this House should be supreme. Under the present system in this country Democratic government is a screaming farce." He urged that there be some change of governmental methods whereby the action of the Senate could be overcome.

Hon. George P. Graham, Minister of Railways and Canals, explained, "The government has shown its sympathy in a practical way in regard to these branch lines, but I regret to say that there is no possible method that I can see—and I have thought a good deal about it—by which the wishes of Mr. Davies can be met without a change being made in the British North America Act." "Well, let us make it," retorted Thomas Sales, another Saskatchewan member. Then came a suggestion from W. F. Maclean, one of the Conservative members from Toronto, "As a result of what has happened in another place in regard to the Canadian National branch lines, I would suggest that the government call Parliament together next October and re-enact the bills that have been defeated this session in the Upper Chamber. By doing that they would serve notice on our friends that they must play fair with the people of Canada, and with their representatives in this House."

Traffic News

The Canadian Pacific has issued a folder entitled, "Golf in Canada" in which every golf club in the Dominion is listed and described. The folder also contains directions for getting to each course, the names and addresses of secretaries, and details of the game.

Freight Traffic for May

Freight traffic during the first five months in 1924 was nearly 8 per cent below that for the corresponding period last year, according to a compilation by the Bureau of Railway Economics. The total was 172,681,697,000 net ton miles, 14,802,170,000 net ton miles under the total for the corresponding period in 1923.

In the Eastern district the total was 88,211,899,000 net ton miles, a decrease of 10.3 per cent, while in the Southern district the total, 24,675,587,000, was a decrease of 6.4 per cent; in the Western district the total, 59,794,211,000, was a decrease of 4.8 per cent.

For the month of May alone, total freight traffic on Class I railroads was 33,890,623,000 net ton miles, 14.4 per cent below the same month in 1923. In the Eastern district, the decrease was 19.5 per cent, while in the Southern district it was 12.4 per cent and in the Western 6.7 per cent.

The average daily movement per freight car for the month of May was 25.9 miles, 2.7 miles below the daily average for May, 1923, but 3.3 miles above the average for the same month in 1922.

The average load per freight car in May was 26.4 tons, 1.6 tons below that for the month of May last year, but 1.4 tons above the daily average for May, 1922.

Necessity for Increasing Coal Movement

The Interstate Commerce Commission has issued a notice calling attention to the necessity of increasing coal shipments to avoid transportation shortages at the time of peak movement. It says, in part:

The average production of bituminous coal per year for the past seven years (exclusive of the strike year 1922) has been approximately 520,000,000 tons. The average production in the last six months of such years was 6.8 per cent greater than the average for the first six months. For the first-half of this year production has been about 227,639,000 tons. If in the last half of this year production is 6.8 per cent greater than in the first half, the total for the last six months will be 243,118,000 tons, or an average of 9,500,000 tons weekly for weeks of six working days each. Since April 1, 1924, the bituminous coal produced has been less than 7,500,000 tons per week in each instance.

"It can readily be seen, therefore, that if shipments of bituminous coal for winter consumption are deferred for any considerable length of time, the railroads will be called upon to handle a very large quantity of coal during the peak freight movement in the fall.

"The aggregate of bituminous coal shipped by lake to the Northwest during the 1924 season of Lake navigation to June 30, plus bituminous coal stocks at the head of the lakes April 1st of this year, is 12 per cent less than the corresponding figure for 1923, and 16 per cent less than the corresponding total for 1921, although larger than in 1920 and 1922. However, during the fall months of 1920 and 1922 there were severe car shortages, and in the latter year a miners' strike. * * * considerably less coal has been distributed from the head of the lakes than at this period last year. Roads in the Northwest will soon be taxed to their utmost with a very heavy movement of agricultural products. It is therefore urgently suggested to the people of the Northwest that they purchase their coal early. * * * There are no definite records available respecting present coal stocks. * * * The fall months are usually the peak months of transportation. The necessity for increasing coal production prior to the peak movement would seem apparent if we are to avoid transportation shortages."

Labor News

On July 29 the Canadian Brotherhood of Locomotive Engineers will meet in Toronto for their annual convention. As this organization is affiliated with the Brotherhood of Locomotive Engineers of America it will attract to the gathering delegates from various parts of the continent. The Brotherhood has a total membership of 90,000 of which 6,000 are in Canada.

Balloting of the machinists employed by the Canadian National Railways at Point St. Charles, Montreal, is proceeding on the question of policy to be followed when reduction of expenses is called for. The men are required to choose between a reduction of staff and a periodical closing down. Questions on the ballot paper are: 1. Do you favor a minimum week of 40 hours and a reduction of staff if necessary? 2. Do you favor closing of shops one week per month if necessary in order to avoid a reduction of staff? The company has offered a proposition by which the men take a week off in every month for six months in lieu of a reduction of staff. Those balloting at Point St. Charles total 6,700 men. Voting is also proceeding at the shops at St. Malo, Que., Stratford, Ont., London, Leaside (Toronto) and Ottawa.

Canadian Telegraphers Seek Higher Wages

Telegraphers, linemen and automatic operators in the employ of the Canadian National Telegraphs and the Canadian Pacific Telegraphs have applied to the Dominion government (Department of Labor) for the appointment of a board of conciliation to deal with their wage dispute with their companies. The men have named James Simpson of Toronto as their representative on the board. No reply has yet been received from the government regarding their application. It was at the end of May that the telegraphers' organization presented a new schedule of wages to the companies for approval, that schedule providing in some cases for an increase in pay of 45 per cent. In view of the conditions prevailing throughout the Dominion and for other reasons the companies believed that the demands of the men were unreasonable. There were a number of conferences resulting in last week's application for a board of conciliation. At present telegraphers are classified in three grades. The pay runs from about \$140 to \$155 a month in Eastern Canada, and slightly higher in Western Canada. About 4,000 telegraphers are employed by the Canadian National System.

Labor Board Decisions

Representation of Switchmen in Chicago District

A decision favorable to the railways has been handed down by the Railroad Labor Board in a dispute between the Brotherhood of Railroad Trainmen and 14 railways in the Chicago district, over the representation and manner of handling grievances of switchmen in the Chicago district. The claim of the employees that the so-called Chicago Memorandum of Agreement, which provided for the adjudication of disputes by a local committee of the employees and the local officials of individual roads, is still in effect was denied by the Board, which upheld the contention of the railways that the agreement referred to has been abrogated. The Board, in its decision, declared that the yard agreement covering rates of pay and working conditions on all lines and parties to the so-called Chicago Memorandum of Agreement, lies with the Brotherhood of Railroad Trainmen, except where subsequently these agreements were changed. The request of the employees that disputes of individual lines on which agreements could not be reached at home be referred to a committee of managers was denied. On the question of representation of the switchmen as such, the Board declared that the employees have the right to representatives of their own choice and that the Brotherhood of Railroad Trainmen has the right to have the association of local grievance committeemen act as the representatives of the yardmen and switch tenders in the Chicago district in the handling of their grievances either with the adjustment board or with the Railroad Labor Board.—Decision No. 2531.

Equipment and Supplies

Locomotives

THE CENTRAL VERMONT has ordered 2 locomotive tenders of 8,000 gal. capacity from the American Locomotive Company.

THE ENYATI RAILWAY OF SOUTH AFRICA has ordered 1, 2-10-2 type locomotive from the Baldwin Locomotive Works.

THE LOURENCO MARQUES PORTUGUESE EAST AFRICA has ordered 2 Mikado type locomotives from the Baldwin Locomotive Works.

THE NEW YORK CENTRAL has ordered 20 locomotive tenders of 15,000 gal. capacity from the American Locomotive Company, and 5 from the Lima Locomotive Works.

THE LEHIGH VALLEY, reported in the *Railway Age* of July 5 as contemplating buying 20 locomotive tenders of 12,000 gal. capacity, has ordered this equipment from the American Locomotive Company.

THE KNOX RAILROAD COMPANY has ordered 1 Prairie type locomotive from the American Locomotive Company. This locomotive will have 16 by 24 in. cylinders and a total weight in working order of 112,000 lb.

THE CINCINNATI, INDIANAPOLIS & WESTERN has ordered 4 Pacific type locomotives from the American Locomotive Company. These locomotives will have 23 by 28 in. cylinders and a total weight in working order of 240,000 lb.

THE BANGOR & AROOSTOOK, reported in the *Railway Age* of July 19 as inquiring for 4 Consolidation type locomotives, has ordered this equipment from the American Locomotive Company. These locomotives will have 23 by 30 in. cylinders and a total weight in working order of 216,000 lb.

THE DULUTH, SOUTH SHORE & ATLANTIC has ordered 2 Pacific type locomotives and 2 Consolidation type locomotives from the American Locomotive Company. The Pacific type will have 21 by 26 in. cylinders and a total weight in working order of 202,000 lb., and the Consolidation type locomotives will have 21 by 28 in. cylinders and a total weight in working order of 188,000 lb.

Freight Cars

THE GREAT NORTHERN is inquiring for 50 steel underframes.

THE UNION RAILROAD is inquiring for 12 gondola cars of 70 tons' capacity.

JAMES M. MOTLEY, 43 Cedar street, New York, is inquiring for 75 cane cars of 15 tons' capacity.

THE CARNEGIE STEEL COMPANY, reported in the *Railway Age* of July 12 as inquiring for 20 tank cars of 12,500 gal. capacity, has ordered this equipment from the Standard Tank Car Company.

THE BRADEN COPPER COMPANY, New York, reported in the *Railway Age* of June 7 as inquiring for 12 tank cars of 4,000 gal. capacity and 12 tank cars of 10,000 gal. capacity, has ordered 12

tank cars of 4,000 gal. capacity from the General American Tank Car Corporation and 12 tank cars of 10,000 gal. capacity from the American Car & Foundry Co.

THE NATIONAL RAILWAYS OF MEXICO were reported in the *Railway Age* of July 5 as having given a contract to Samuel Vauclain, president of the Baldwin Locomotive Works for about 3,000 freight and passenger cars. An order has now been given to the Standard Steel Car Company for 800 box cars, and 140 stock cars, narrow gage, 300 box cars and 200 stock cars, standard gage.

Passenger Cars

THE READING COMPANY, reported in the *Railway Age* of June 28 as inquiring for from 60 to 100 cars, has ordered 40 steel coaches from the Bethlehem Shipbuilding Corporation, 10 steel combination coach and baggage cars from the Standard Steel Car Company, and 10 all steel baggage cars from the American Car & Foundry Co.

Iron and Steel

THE READING COMPANY has given an order for 300 tons of bridge steel to the Phoenix Bridge Company.

THE WABASH has ordered 370 tons of structural steel for use at Detroit, Mich., from the American Bridge Company.

THE MICHIGAN CENTRAL has ordered 815 tons of structural steel for use at Detroit, Mich., from the McClintic-Marshall Company.

THE LOUISVILLE & NASHVILLE has ordered 350 tons of structural steel for a shop at Corbin, Ky., from the International Steel & Iron Company.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 102 tons of structural steel for use at Blue Island, Ill., from the McClintic-Marshall Company.

THE SOUTHERN RAILWAY has given an order to the Virginia Bridge & Iron Co. for 1,500 tons of steel, to be used for a car shop at Spartanburg, S. C.

THE LONG ISLAND has placed an order with the Shoemaker Bridge Company for 200 tons of structural steel, for an electric motor house at Morris Park.

THE ERIE is inquiring for 300 tons of structural steel for a power house at Jersey City, N. J. The Erie has given an order to the American Bridge Company for 200 tons of steel for bridges.

THE NORFOLK & WESTERN has placed an order for 250 tons of structural steel for a freight house at Bluefield, W. Va. A contract has been given to the Virginia Bridge & Iron Co. for 400 tons of bridge steel.

Miscellaneous

THE ILLINOIS CENTRAL will ask for bids soon for a side wheel transfer steamer to be used at Helena, Ark. The boat is to have a length of 270 ft., a beam of 52½ ft., and a depth of 7 ft. 9 in. It will be equipped with engines 25 in. in diameter by 8 ft. stroke (high pressure). The boat will have a capacity of 12 cars.

FREIGHT CAR REPAIR SITUATION

Date 1923	Number Freight Cars on line	Cars Awaiting Repairs			Per Cent of cars awaiting repairs	Month	Cars Repaired		
		Heavy	Light	Total			Heavy	Light	Total
January 1	2,264,593	164,041	51,970	216,011	9.5				
April 1	2,296,997	154,302	52,010	206,312	9.0				
July 1	2,260,532	146,299	44,112	190,411	8.4	June	121,077	2,451,758	2,572,835
October 1	2,270,840	118,563	32,769	151,332	6.7	September	114,064	2,335,161	2,449,225
November 1	2,263,099	116,084	34,540	150,624	6.6	October	117,254	2,444,118	2,561,372
December 1	2,270,405	116,697	38,929	155,626	6.8	November	104,761	2,214,617	2,319,378
1924						December	87,758	2,073,280	2,161,038
January 1	2,279,363	118,653	39,522	158,175	6.9	January	76,704	2,083,583	2,160,287
February 1	2,269,230	115,831	45,738	161,569	7.1	February	70,056	2,134,781	2,204,837
March 1	2,262,254	119,505	49,277	168,782	7.5	March	77,365	2,213,158	2,290,523
April 1	2,274,750	125,932	46,815	172,747	7.6	April	75,352	2,074,629	2,149,981
May 1	2,271,638	131,609	47,666	179,275	7.9	May	73,646	2,130,284	2,203,930
June 1	2,280,295	138,536	50,683	189,219	8.3				

Supply Trade News

The Hyman-Michaels Company, Chicago, has discontinued its Detroit, Mich., office and has consolidated that branch with its Pittsburgh, Pa., agency.

W. J. Emig, representative of the **National Carbon Company**, Cleveland, Ohio, has been promoted to carbon product engineer in the railway sales division, with headquarters at Cleveland, Ohio.

The Grip Nut Company, Chicago, has acquired a tract of land at 5917 S. Western avenue, on which it will lay out an 18-hole practice golf course covering two acres, which may be used by employees and visitors to the factory.

D. R. Arnold, general sales manager of the **Canadian Car & Foundry Company, Ltd.**, with headquarters at Montreal, Que., has been appointed assistant to the vice-president of the **Union Metal Products Company**, with headquarters at Chicago.

The Northern Refrigerator Car Company, Cudahy, Wis., has given a general contract to the **Worden-Allen Company**, Milwaukee, Wis., for the construction of a one-story brick and steel car construction and service shop 125 ft. by 225 ft. in area.

Cleon M. Hannaford on July 1, severed his connections with the Chesapeake & Ohio and will devote his entire time in future to the railway supply business as president of the **Car Devices Company, Inc.**, Richmond, Va., which he organized in 1922 and to the development of a number of patented devices invented by him. Mr. Hannaford entered the service of the Boston & Albany in 1912 as blue print operator, he subsequently was promoted to tracer in the mechanical department, and later served as draftsman until 1916 when he was appointed draftsman in the West Springfield shops in charge of stationery and operating tests. In January, 1917, he left the service of the Boston & Albany to go to the Chesapeake & Ohio as assistant chief draftsman in the motive power department at Richmond, Va., where he was in charge of designing freight cars and locomotives and of preparing drawings and specifications for new equipment. His inventions include a lock lift; forged steel uncoupling attachment; one-piece drop forged angle cock holder; and an angle cock with rear extension.



C. M. Hannaford

Obituary

Harold B. Jones, president of the **Mid-West Forging Company**, with headquarters at Chicago, and a former vice-president of the **Inland Steel Company**, died on July 18, following a four-day illness of pneumonia. He was in the employ of the **Inland Steel Company** for 15 years and during the latter two years of his connection with this company he supervised the operation of the company's plant at Chicago Heights. He resigned from the **Inland Steel Company** in 1923, to become president of the **Mid-West Forging Company**.

THE GENERAL OFFICES of the **St. Louis Southwestern** at St. Louis, Mo., have been moved from the **Railway Exchange** to the **Pontiac building**, Seventh and Market streets.

Railway Construction

AMERICAN RAILWAY EXPRESS COMPANY.—This company plans the construction of a 135-ft. by 40-ft. brick express depot at Alliance, Ohio, to cost approximately \$30,000.

ALTON & SOUTHERN.—This company will soon begin the construction of an extension from Granite City, Ill., to Lenox, where connections will be made with the Cleveland, Cincinnati, Chicago & St. Louis, the Chicago & Eastern Illinois, the Chicago & Alton, the Chicago, Burlington & Quincy and the Wabash.

ATCHISON, TOPEKA & SANTA FE.—This company will begin at once the rebuilding of its line between Kiowa, Kans., and Gerlane, a distance of approximately 10 miles. This line was virtually destroyed by flood in October, 1923.

HOCKING VALLEY.—This company is contemplating the construction of a freight yard at Walbridge, Ohio, four miles South of Toledo.

LONGVIEW, PORTLAND & NORTHERN.—This company has awarded a contract to the **Hart Construction Company**, Tacoma, Wash., for the construction of 44 trestle bridges between West Kelso, Wash., and Vader, a distance of 20 miles.

LOUISVILLE & NASHVILLE.—This company has awarded a contract to **Doullut & Williams**, New Orleans, La., for the construction of a 50-ft. by 935-ft. two-story brick warehouse at New Orleans, La. Other construction planned at New Orleans includes a 36-ft. by 180-ft. brick enginehouse and a 16-ft. by 322-ft. two-story brick shop and storage building. This company plans the construction at Gentilly, La., of 40,000 ft. of yard tracks requiring 23,000 cu. yd. of fill; a 90-ft. turn table; a 7-stall brick roundhouse; a 68-ft. by 32-ft. brick machine shop; a 30-ft. by 50-ft. two-story brick office building; a 25-ft. by 40-ft. one-story frame engineer's register room, a 40-ft. by 100-ft. brick car department building; a 20-ft. by 55-ft. two-story frame locker building; sand house, yard office and employees' shelters and the laying of 14,200 ft. of 8-in. cast iron pipe line and 1,100 ft. of 10-in. cast iron pipe line. The work at Gentilly, with the exception of the buildings, will be done by company forces. Plans for the buildings have not yet been completed.

LOUISVILLE & NASHVILLE.—This company is preparing plans for the construction of a brick passenger station at Bowling Green, Ky., to cost approximately \$200,000.

MISSOURI PACIFIC.—This company is preparing plans for the construction of a brick passenger station at Bastrop, La.

MISSOURI PACIFIC.—This company, reported in the *Railway Age* of July 12 as contemplating the construction of a freight station at McGehee, Ark., to cost approximately \$125,000, has prepared plans for the construction of a team track with a covered transfer platform.

NEW YORK, CHICAGO & ST. LOUIS.—This company contemplates the construction of a four-track bridge across the Rocky River at Cleveland, Ohio.

OREGON SHORT LINE.—This company has awarded a contract to C. P. Anderson, Salt Lake City, Utah, for the construction of a passenger station at Nampa, Idaho, to cost approximately \$125,000.

PENNSYLVANIA.—This company plans the immediate construction of a bridge across the Beaver River at New Brighton, Pa., with necessary relocation of tracks the entire project to cost \$2,000,000. The bridge across the Ohio River at Steubenville, Ohio, is to be rebuilt.

SOUTHERN.—This company has awarded a contract to the **Smallman-Brice Company**, Birmingham, Ala., for the construction of a ten-story office building at Birmingham.

UNION PACIFIC.—This company has awarded a contract to **Morrison & Knudson**, Boise, Idaho, for the laying of steel on the extension from Crane, Ore., to Burns.

Railway Financial News

ALABAMA GREAT SOUTHERN.—Annual Report.—The annual report for the year ended December 31, 1923, shows a balance of income over charges of \$2,030,437 as compared with \$1,082,430 in 1922. A selection of the principal items in the income account follows:

	1923	1922
Freight revenue.....	\$8,051,920	\$6,171,637
Passenger revenue.....	2,159,451	1,845,890
Total operating revenues.....	10,853,219	8,524,804
Maintenance of way and structures.....	1,267,688	994,417
Maintenance of equipment.....	2,301,856	1,737,193
Traffic.....	261,346	217,624
Transportation.....	3,519,753	3,266,259
General.....	289,347	285,239
Total operating expenses.....	7,716,378	6,565,760
Net revenue from operations.....	3,136,841	1,959,044
Taxes.....	641,842	490,600
Operating income.....	2,469,543	1,438,909
Gross income.....	2,793,010	1,799,379
Total deductions.....	762,573	716,949
Balance of income over charges.....	2,030,437	1,082,430
Dividends of 7 per cent on preferred stock.....	236,625	236,625
Dividends of 7 per cent on ordinary stock.....	548,100	548,100
Balance carried to credit of Profit and Loss.....	1,245,713	297,706

ALTON & SOUTHERN.—Stock.—The Interstate Commerce Commission has authorized the issue of \$2,173,800 of common stock for the purpose of discharging an indebtedness to the Aluminum Company of America and for other purposes.

ASHERTON & GULF.—Sold.—Mrs. M. I. Richardson has sold this railroad, which she has owned and operated for several years. The purchaser was James McMahon and associates. The line, which now runs from Asherton, Tex., to Bart, 32 miles, is to be extended from Bart to Eagle Pass, 55 miles. At Eagle Pass the road will connect with the Southern Pacific and the National Railways of Mexico. The Interstate Commerce Commission has granted permission for the road to issue \$200,000 of 6 per cent first mortgage bonds, which have been negotiated through the firm of Paul L. Hart & Co., of Chicago.

ATCHISON, TOPEKA & SANTA FE.—Director Resigns.—John W. Davis, Democratic nominee for President, has resigned as a director of this company.

CHICAGO, BURLINGTON & QUINCY.—New Trustee.—Walter S. McClucas, of Kansas City, Mo., has been appointed individual trustee under the general mortgage dated March 2, 1908, to succeed Oliver M. Spencer, deceased.

CHICAGO & ILLINOIS MIDLAND.—Excess Income.—The Interstate Commerce Commission has ordered a hearing before Examiner Law on October 20 on this company's excess income returns. For 1920 the company reported a valuation of \$4,594,831 and excess income within the meaning of section 15a of the commerce act amounting to \$146,120. For 1921 the value was reported as \$4,601,551; for 1922, \$4,603,494; and for 1923, \$5,380,260 and \$153,567 excess income was reported for 1923.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—Bonds.—This company has been authorized by the Interstate Commerce Commission to issue \$1,061,000 of first and general mortgage 6 per cent gold bonds and to pledge them from time to time as collateral for notes.

CHICAGO, MILWAUKEE & ST. PAUL.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon its line from Babcock to Tomah, Wis., 28 miles.

CINCINNATI NORTHERN.—Annual Report.—The annual report for the year ended December 31, 1923, shows a net income before dividends of \$748,950 as compared with \$265,252 in 1922. The income account compares as follows:

	1923	1922	Increase or decrease
Mileage operated.....	244	244	
Operating revenues.....	\$5,174,419	\$3,505,287	\$1,669,132
Operating expenses.....	3,573,998	2,697,736	876,262
Net revenue from railway operations.....	1,600,421	807,551	792,870
Railway tax accruals.....	247,428	183,851	63,578

Railway operating income.....	1,352,579	623,084	729,495
Net railway operating income.....	838,257	348,557	489,700
Gross income.....	873,046	374,577	498,469
Total deductions from gross income.....	124,096	109,326	14,770
Net income.....	748,950	265,252	483,699
Dividends declared (6 per cent in 1923; 3 per cent in 1922).....	180,000	90,000	90,000
Surplus for the year.....	568,950	175,252	393,699

DENVER & RIO GRANDE WESTERN.—Hearing.—Federal Judge Symes of Denver, Colo., has set July 31 for the hearing of application of the Bankers Trust Company and the New York Trust Company, trustees for the Denver & Rio Grande Western bonds in default, for the final decree of foreclosure and sales of the properties under the mortgages. The decree containing the proposed terms of sale is being prepared in New York by the Bankers Trust Company.

GEORGIA, SOUTHERN & FLORIDA.—Annual Report.—The annual report for the year ended December 31, 1923, shows a balance of income over charges of \$391,684 as compared with \$118,078 in 1922. A selection of the principal items in the income account follows:

	1923	1922
Freight revenue.....	\$3,456,669	\$2,912,376
Passenger revenue.....	1,413,691	1,236,825
Total operating revenues.....	5,319,345	4,518,016
Maintenance of way and structures.....	848,473	741,174
Maintenance of equipment.....	896,040	791,276
Traffic.....	110,796	103,838
Transportation.....	2,076,122	1,928,031
General.....	137,675	146,408
Total operating expenses.....	4,102,187	3,744,211
Net revenue from operations.....	1,217,157	773,806
Taxes.....	235,164	192,712
Operating income.....	633,021	394,539
Gross income.....	652,982	425,005
Total deductions.....	261,299	306,926
Balance of income over charges.....	391,684	118,078
Dividend of 2½ per cent of preferred stock.....	44,200	
Balance carried to Profit and Loss.....	347,484	118,078

GREAT NORTHERN.—Annual Report.—The annual report for the year ended December 31, 1923, shows a net income before charges of \$18,067,947 as compared with \$10,865,672 in 1922. A selection of the principal items in the income account follows:

	1923	1922	Increase or decrease
Average mileage of road operated.....	8,254	8,261	—7
Freight revenue.....	\$93,672,147	\$78,065,563	\$15,606,584
Passenger revenue.....	15,305,242	15,112,453	192,789
Total operating revenues.....	120,077,772	103,452,937	16,624,834
Maintenance of way and structures.....	15,255,041	13,153,323	2,101,718
Maintenance of equipment.....	21,723,923	19,585,290	2,138,633
Traffic.....	1,821,771	1,628,315	193,456
Transportation.....	45,146,275	42,179,201	2,967,074
General.....	2,525,819	2,474,455	51,364
Total operating expenses.....	86,750,523	79,636,038	7,114,485
Railway tax accruals.....	9,113,227	8,097,725	1,015,501
Railway operating income.....	24,193,040	15,703,640	8,489,400
Net railway operating income.....	24,731,992	17,276,598	7,455,394
Total non-operating income.....	10,313,261	10,487,006	—173,745
Gross income.....	35,045,252	27,763,604	7,281,649
Total deductions from gross income.....	16,977,305	16,897,932	79,373
Net income.....	18,067,947	10,865,672	7,202,275
Income applied to sinking and other reserve funds.....	11,123	20,520	—9,397
Dividend appropriations of income.....	12,473,705	13,097,264	—623,659
Total appropriations of income.....	12,484,828	13,117,784	—633,056
Balance.....	5,583,220	Dr. 2,252,112	7,835,331
*Income from funded securities. Eliminating from this account the interest on S. P. & S. Ry. Co.'s bonds (accrued in 1921), still unpaid.....	Dr. 5,227,721		—5,227,721
Income balance transferred to profit and loss.....	355,498	Dr. 2,252,112	2,607,610

*The charge of \$5,227,721 to "Income from funded securities" should not be considered in determining the amount earned by the company during the year 1923, as it is solely a book adjustment having no effect on the cash account. The net income earned during the year was \$18,067,947, which was a return of 7.24 per cent on the outstanding capital stock.

A review of the Great Northern annual report for 1923 will appear in an early issue of the *Railway Age*.

GRAND RAPIDS & INDIANA.—Tentative Valuation.—The Interstate Commerce Commission has served a tentative valuation report as of June 30, 1917, placing the final value for rate-making purposes at \$20,019,097 for the property owned and \$22,533,087 for the property used. The outstanding capitalization as of valuation date was \$17,314,700 and the investment in road and equipment as stated on the books was \$19,117,732, which the report readjusts to \$16,655,299.

HANNIBAL CONNECTING.—Status as Common Carrier.—The Interstate Commerce Commission has issued a decision holding that this company, a majority of whose stock is owned by the Atlas Portland Cement Company, is a common carrier engaged in interstate commerce and subject to the provisions of section 15a of the Interstate Commerce Act. The company reported

excess earnings for 1922 but contended that it was not subject to the section.

INTERSTATE.—Tentative Valuation.—The Interstate Commerce Commission has served a tentative valuation report as of June 30, 1916, placing the final value for rate-making purposes at \$1,835,220.

LEHIGH VALLEY.—Appeal to Stockholders.—President E. E. Loomis has written to stockholders asking them to route their freight and passenger business over the Lehigh Valley. President Loomis says in the letter: "The present dividend rate can be maintained if the business of the country continues on a normal basis and the Lehigh Valley obtains a fair share of it. The railroad is in a position to handle all the traffic offered it, expeditiously and economically. If our 16,500 stockholders will assist us to increase our freight and passenger earnings, they will make an important contribution to the prosperity of the company, and at the same time aid materially in assuring themselves a satisfactory dividend rate for the future."

MISSOURI-KANSAS-TEXAS.—Notes.—The Interstate Commerce Commission has authorized an issue of \$4,750,000 of 6 per cent secured gold notes and the pledge of \$6,100,000 of prior lien 6 per cent bonds as collateral therefor.

MISSOURI PACIFIC.—Notes.—The Interstate Commerce Commission has authorized an issue of \$12,000,000 of three-year 5 per cent secured gold notes at not less than 97½ and the pledge as collateral therefor of \$15,500,000 of first and refunding mortgage 6 per cent bonds. The commission has also authorized the authentication and delivery of \$23,810,000 of first and refunding mortgage 6 per cent bonds and the pledge of \$8,310,000 of them as collateral for notes.

MOBILE & OHIO.—Annual Report.—The annual report for the year ended December 31, 1923, shows a balance of income over charges of \$1,127,968 as compared with \$1,018,962 in 1922. The income account compares as follows:

	1923	1922
Freight revenue	\$16,937,741	\$15,101,088
Passenger revenue	2,043,608	1,813,032
Total operating revenues	20,112,417	17,878,005
Maintenance of way and structures	2,812,790	2,139,157
Maintenance of equipment	4,556,580	3,908,679
Traffic	553,662	515,336
Transportation	7,360,709	6,695,226
General	556,435	565,267
Total operating expenses	15,837,060	13,834,221
Net revenue from operations	4,275,357	4,043,784
Taxes	981,331	761,596
Operating income	2,695,009	2,713,282
Gross income	2,847,382	2,716,865
Total deductions	1,719,414	1,697,903
Balance of income over charges	1,127,968	1,018,962
Dividend of 7 per cent on common stock (4 per cent in 1922)	421,176	240,672
Balance carried to credit of profit and loss	706,792	778,290

PENNSYLVANIA.—To Exchange Bonds.—The treasurer of the company announces that he is prepared to exchange definitive bonds for temporary certificates of the recently issued Philadelphia, Baltimore & Washington five per cents of February 1, 1974, and the Pittsburgh, Youngstown & Ashtabula five per cents of

February 1, 1962. The exchange may be made at the general offices of the Pennsylvania Railroad, Broad Street Station, Philadelphia, or at the company's New York offices, 85 Cedar street.

PITTSBURGH & LAKE ERIE.—Annual Report.—The annual report for the year ended December 31, 1923, shows a net income before dividends of \$13,170,106 as compared with \$4,332,011 in 1922. The income account compares as follows:

	1923	1922	Increase or decrease
Miles operated	234	231	3
Freight revenue	\$40,259,528	\$25,618,907	\$14,640,622
Passenger revenue	3,305,399	2,815,647	489,752
Total operating revenues	44,666,690	29,570,983	15,095,707
Maintenance of way and structures	5,212,893	3,341,517	1,871,376
Maintenance of equipment	11,993,699	10,933,565	1,060,135
Traffic expenses	262,071	256,909	5,163
Transportation	12,414,060	9,781,745	2,632,315
General	775,303	742,227	33,075
Total operating expenses	30,677,899	25,080,013	5,597,886
Net revenue from railway operations	13,988,791	4,490,970	9,497,821
Railway tax accruals	2,753,881	1,096,446	1,657,435
Net railway operating income	15,574,595	5,279,742	10,294,852
Gross income	16,794,617	6,018,304	10,776,313
Total deductions from gross income	3,624,510	1,686,293	1,938,217
Net income	13,170,106	4,332,011	8,838,095
Dividends declared, 10% each year	3,598,560	3,598,560	—
Surplus for the year	9,571,546	733,451	8,838,095

READING.—Preferred Stockholders' Suit.—The Federal District Court at Philadelphia, on July 22, held that the preferred stockholders of the Reading Company are not entitled to receive dividends of more than 4 per cent in any fiscal year, and ordered a group of ten preferred stockholders to discontinue their suit in the Philadelphia County Court, in which they sought to have that court interpret their new stock contracts as entitling them to equal dividends with the common stockholders.

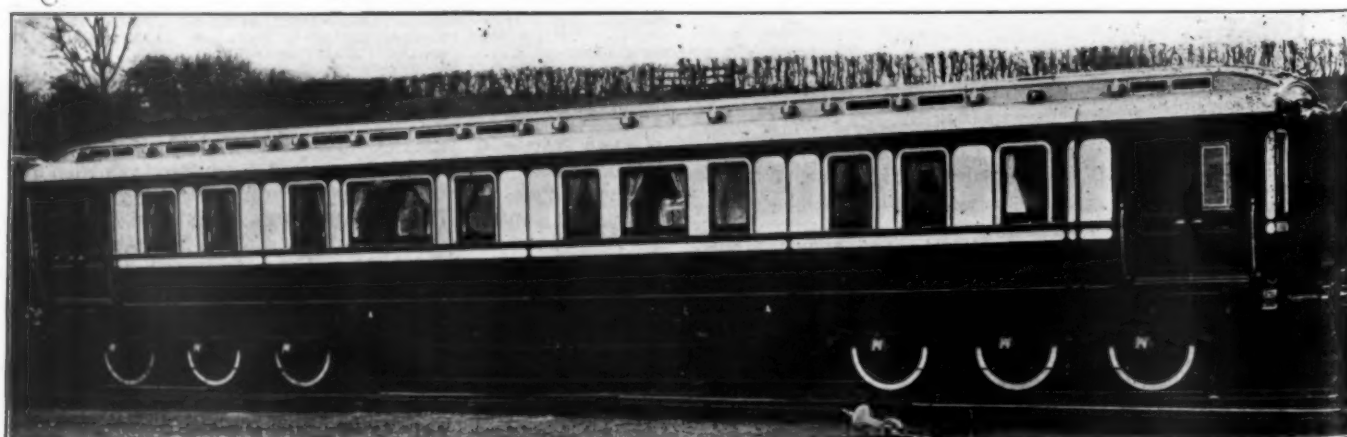
The decision, filed on a petition by the Reading Company to have the minority stockholders adjudged in contempt for filing the suit, stated that the United States Supreme Court in its decree dissolving the Reading Company and its allied corporations, ruled that the preferred classes of stock were limited to 4 per cent dividends and that consequently the matter was not open for further litigation. Appeal may be taken to the United States Supreme Court.

Dividends Declared

Oswego & Syracuse.—4½ per cent, payable August 20 to holders of record August 7.
 Passaic & Delaware.—2½ per cent, payable August 1 to holders of record July 24.
 Pullman Company.—\$2, payable August 15 to holders of record July 31.
 Syracuse, Binghamton & New York.—3 per cent, quarterly, payable August 1 to holders of record July 24.

Trend of Railway Stock and Bond Prices

	July 22	Last Week	Last Year
Average price of 20 representative railway stocks	71.40	68.85	60.88
Average price of 20 representative railway bonds	88.63	87.81	82.63



International

The King's Coach, Royal Train, London, Midland & Scottish Railway

Railway Officers

Executive

P. E. Odell, general manager of the Gulf, Mobile & Northern, with headquarters at Mobile, Ala., has been elected vice-president and general manager with the same headquarters.

M. D. Cloyd, whose promotion to assistant to the president and assistant secretary of the Texas & Pacific, with headquarters at Dallas, Tex., was reported in the *Railway Age* of July 12, was born on July 2, 1886, at Nashville, Tenn. After graduating in civil engineering from the University of Texas in 1908, he entered railway service as a clerk in the accounting department of the Atchison, Topeka & Santa Fe. He was later transferred to the engineering department, but returned to the general auditor's office at Amarillo, Tex., in 1909. Mr. Cloyd was promoted to traveling accountant in 1910 and held this position until February, 1912, when he was appointed statistician in the office of the vice-president of the Missouri-Kansas-Texas. He entered the service of the Texas & Pacific as statistician in September, 1912, and in February, 1913, was also appointed statistician in the office of the president of the International-Great Northern. He was appointed secretary and auditor of the Trans-Mississippi Terminal at New Orleans, La., in 1916, returning to the Texas & Pacific two years later as treasurer. Mr. Cloyd was appointed secretary and treasurer of the Texas & Pacific-Missouri Pacific Terminal at New Orleans and valuation auditor of the Texas & Pacific in 1920 and he continued in these positions until his recent promotion to assistant to the president and assistant secretary of the Texas & Pacific.

Operating

R. W. Cattermole, chief engineer of the Tonopah & Goldfield, with headquarters at Goldfield, Nev., has also been appointed superintendent.

E. Van Gundy has been appointed acting superintendent of transportation of the Alaska Railroad, with headquarters at Anchorage, Alaska, succeeding J. T. Cunningham.

G. R. Buddin, superintendent of the Southern, Lines East, with headquarters at Alexandria, Va., has been appointed inspector of transportation, with headquarters at Charlotte, N. C.

G. W. Groom, assistant superintendent of the Central Vermont, with headquarters at St. Albans, Vt., has been promoted to superintendent, with the same headquarters, succeeding John E. Maun, deceased. The position of assistant superintendent has been abolished.

E. Van Gundy, acting superintendent of transportation of the Alaska Railroad, with headquarters at Anchorage, Alaska, has been promoted to assistant to the general manager, with the same headquarters, and the office of acting superintendent of transportation has been abolished.

C. V. Switzer, trainmaster of the Cumberland Valley division of the Pennsylvania, has been appointed freight trainmaster of the Philadelphia Terminal division, succeeding J. A. Appleton, promoted. **E. E. Ernest**, assistant freight trainmaster of the Middle division, has been appointed trainmaster of the Cumberland Valley division, succeeding Mr. Switzer. **W. J. Spangle**, assistant trainmaster of the Williamsport division, has been appointed assistant freight trainmaster of the Middle division, succeeding Mr. Ernest.

E. T. M. Carr, passenger trainmaster of the Central of New Jersey, with headquarters at Jersey City, N. J., has been appointed superintendent of the New Jersey Southern division, with headquarters at East Long Branch, N. J., succeeding S. B. Zartman. **A. R. Young**, terminal trainmaster of the Central division, has been appointed passenger trainmaster, succeeding Mr. Carr. **R. F. Dickerson**, freight trainmas-

ter, has been appointed terminal trainmaster, succeeding Mr. Young, the position of freight trainmaster having been abolished. **M. J. Haggerty** has been appointed assistant trainmaster of the Central division. **George W. DeGraff**, assistant trainmaster, has been assigned the duties formerly performed by the freight trainmaster.

R. C. Williams, whose promotion to superintendent of the Missouri division of the Missouri Pacific, with headquarters at Poplar Bluff, Mo., was announced in the *Railway Age* of July 5, was born on December 14, 1883, at Salem, Ill. He entered railway service in August, 1901, with the Chicago & Eastern Illinois, where he remained until 1902, when he entered the employ of the Baltimore & Ohio Southwestern. He entered the employ of the Missouri Pacific on July 10, 1904, and on February 1, 1905, was appointed telegrapher, with headquarters at Jefferson City, Mo., which position he held until August, 1906, when he was appointed car distributor and extra dispatcher. From September, 1912, to 1915, he was a dispatcher and from 1915 to 1917 he was chief dispatcher. In August, 1917, he was promoted to trainmaster at Poplar Bluff, Mo., and in October, 1917, was transferred to Jefferson City, Mo. From April, 1919, to May 29, 1924, he was trainmaster at Nevada, Mo., and on the latter date was promoted to acting superintendent of the Joplin division, which position he held until July 1, 1924, when he was promoted to superintendent of the Missouri division.

Traffic

W. W. Somerville has been appointed general agent of the Louisiana & Arkansas, with headquarters at Dallas, Tex.

J. M. Strupper has been appointed assistant general freight agent of the St. Louis-San Francisco, with headquarters at St. Louis, Mo.

E. F. Stone, traveling freight agent for the Norfolk & Western at Atlanta, Ga., has been appointed commercial agent at Knoxville, Tenn., succeeding R. S. Cooley, deceased.

E. H. DeBoard has been placed in charge of the general freight and passenger department of the Detroit, Toledo & Ironton, with headquarters at Detroit, Mich., succeeding J. E. Adair.

W. L. Thornton has been appointed commercial agent of the Erie, with headquarters at Birmingham, Ala. **R. J. Kilroy** has been appointed commercial agent, with headquarters at Detroit, Mich.

W. H. Skillen, traffic representative of the Boston & Maine, with headquarters at Chicago, has been promoted to general agent, with headquarters at Kansas City, Mo., in charge of a newly opened agency.

R. S. Titlow, auditor of the Tonopah & Goldfield, with headquarters at Goldfield, Nev., has also been appointed traffic manager. **J. E. Peck** has been appointed general agent, with headquarters at Tonopah, Nev.

Edward Hart, Jr., assistant freight traffic manager of the Baltimore & Ohio, with headquarters at St. Louis, Mo., has been transferred to Chicago, succeeding G. M. Kridler, whose death on May 21 was reported in the *Railway Age* of May 31.

F. P. Kinney, whose appointment as general freight agent of the New York, New Haven & Hartford with headquarters at New Haven, Conn., was announced in the *Railway Age* of July 5, page 42, was born on October 31, 1866, at New Haven and was educated in the public schools of that city. He entered railroad service in 1895 with the New York, New Haven & Hartford and has been with that company continuously since that date.

L. E. Mueller, supervisor of mail and express of the Pere Marquette, with headquarters at Detroit, Mich., has been promoted to manager of mail, baggage and express traffic, with the same headquarters, a newly created position. **A. E. Plumer**, general baggage agent, with headquarters at Detroit, has been promoted to assistant manager of mail, baggage and express traffic, with the same headquarters, also a newly created position. The offices of supervisor of mail and express and general baggage agent have been abolished.

J. B. Marney, assistant general freight agent of the Baltimore & Ohio, with headquarters at Louisville, Ky., has been promoted to assistant freight traffic manager, with headquarters at St. Louis, Mo., succeeding **Edward Hart, Jr.**, who has been transferred to Chicago. **C. H. Pumphrey**, division freight agent, with headquarters at New York, has been promoted to assistant general freight agent, with headquarters at Louisville, succeeding Mr. Marney. **W. F. Bollman** has been appointed division freight agent, with headquarters at Chillicothe, Ohio, succeeding **F. T. Sturtevant**, who has been transferred to Akron, Ohio. **C. M. Groniger** has been appointed division freight agent, with headquarters at Springfield, Ill., succeeding Mr. Bollman.

J. E. Clark, whose promotion to assistant general freight agent of the Pere Marquette, with headquarters at Buffalo, N. Y., was reported in the *Railway Age* of July 19, was born on July 7, 1866, at Deerfield, Mich. He entered railway service in March, 1884, as a clerk and operator on the Flint & Pere Marquette, now the Pere Marquette railway. In 1886 he was promoted to local agent and in the following year, to traveling freight agent. Mr. Clark was promoted to supervising agent in 1900 and remained in that position until 1903, when he was promoted to commercial agent, with headquarters at Buffalo, N. Y. He was promoted to general agent, with the same headquarters, in 1904 and held that position until his recent promotion to assistant general freight agent.

Harry L. Sheffield, whose appointment as assistant general freight agent on the New York, New Haven & Hartford and the Central New England was announced in the *Railway Age* of July 5, page 42, was born on April 30, 1887, at New Haven, Conn. He was graduated from high school in that city in 1905 and immediately entered the service of the New York, New Haven & Hartford in the traffic department, in which department he served in various capacities until June 1, 1918, when he was appointed traffic assistant to the director of traffic of the Railroad Administration at Washington. On March 1, 1920, he was appointed chief of the tariff bureau of the New York, New Haven & Hartford and Central New England and occupied that position until the time of his recent promotion.

George M. Wood, whose appointment as freight traffic manager of the New York, New Haven & Hartford and Central New England was announced in the *Railway Age* of July 5, page 42, was born on November 28, 1872, at Newton, Mass. He received a common school education and entered railway service in 1888 as a clerk in the general freight department of the Old Colony Railroad, a predecessor of the New Haven. From 1901 to 1906 he was chief clerk to the freight traffic manager of the New York, New Haven & Hartford at Boston. He then served in a similar capacity in the office of the general freight agent at the same point and in 1908 was promoted to assistant general freight agent at Boston. In 1921 he was appointed general freight agent at New Haven, Conn., and remained in that capacity until his recent promotion.

J. A. Lloyd, commercial agent for the Erie, with headquarters at San Francisco, Cal., has been promoted to general agent, with the same headquarters. **H. J. Steeple**, commercial agent with headquarters at San Francisco, has been promoted to general agent, with headquarters at Seattle, Wash., in charge of a newly established agency. **E. C. Kannapell**, general agent, with headquarters at Atlanta, Ga., has been transferred to Kansas City, Mo. **R. L. Murphy** has been appointed commercial agent, with headquarters at Seattle, Wash., and **E. L. Parr** has been appointed commercial agent, with headquarters at Memphis, Tenn. **Charles Patton**, commercial agent at Birmingham, Ala., has been promoted to general agent at Atlanta, Ga., succeeding Mr. Kannapell. **J. W. Norton**, commercial agent at St. Louis, Mo., has been transferred to Detroit, Mich.

Frank W. Goldie, whose promotion to assistant general freight agent of the Pere Marquette, with headquarters at Chicago, was reported in the *Railway Age* of July 19, was born on January 17, 1885, at Milford, Mich., and entered railway service in September, 1902, in the traffic department of the Pere Marquette at Ludington, Mich. In September, 1904, he was

promoted to soliciting freight agent at Buffalo, N. Y. Mr. Goldie was promoted to traveling freight agent, with headquarters at Chicago, in 1906, and two years later was promoted to Pacific Coast agent, with headquarters at Seattle, Wash. He was promoted to Northwestern agent, with headquarters at Minneapolis, Minn., in 1910, and held this position until 1915, when he was promoted to general agent, with headquarters at Milwaukee, Wis. Mr. Goldie remained in this position until his recent promotion to assistant general freight agent.

F. W. Goldie, general agent of the Pere Marquette, with headquarters at Milwaukee, Wis., has been promoted to assistant general freight agent, with headquarters at Chicago, succeeding **F. A. Butterworth**, whose death on June 17 was reported in the *Railway Age* of June 28. **J. E. Clark**, general agent, with headquarters at Buffalo, N. Y., has been promoted to assistant general freight agent, with the same headquarters, a newly created position. **E. T. Reynolds**, general agent, with headquarters at Detroit, Mich., has been promoted to assistant general freight agent, with the same headquarters, also a newly created position. **J. A. Hewitt**, northwestern agent, with headquarters at Minneapolis, Minn., has been promoted to general agent, with headquarters at Milwaukee, succeeding Mr. Goldie. **C. H. Jens** has been appointed northwestern agent, with headquarters at Minneapolis, succeeding Mr. Hewitt.

Mechanical

S. P. Alquist, master car builder of the Pere Marquette, has been appointed to a similar position on the Delaware, Lackawanna & Western, with headquarters at Scranton, Pa., succeeding **J. C. Fritts**, resigned.

R. H. Hale, master mechanic of the Alaska Railroad, with headquarters at Anchorage, Alaska, has been promoted to superintendent of motive power and equipment, with the same headquarters and the office of master mechanic has been abolished.

Purchasing and Stores

Frank T. Swain has been appointed assistant purchasing agent of the Lehigh & New England.

J. W. Kelleher has succeeded **T. H. Ryan** as purchasing agent of the Alabama & Vicksburg, with headquarters at New Orleans, La.

J. R. Bennington, assistant purchasing agent of the Lehigh & New England, with headquarters at Philadelphia, Pa., has been promoted to purchasing agent, with the same headquarters, succeeding **E. Hughes**, who has resigned to become controller of The Lehigh Coal & Navigation Company.

Ed Hoffman, assistant purchasing agent of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., has been promoted to general purchasing agent, succeeding **J. D. McCarthy**, resigned to become associated with the Republic Coal & Coke Company, Chicago.

Special

William Landis has been appointed superintendent of the Philadelphia & Reading Relief Association, succeeding **Walter Hoffman**, deceased. Mr. Landis entered the employ of the Reading Company 45 years ago as a clerk and served in various departments of the company's general office in Philadelphia, Pa. He has been connected with the Philadelphia & Reading Relief Association since July 1, 1891.

Obituary

Louis H. Long, who on account of ill health, retired in 1921 as vice-president of the Southern Pacific of Mexico and the Arizona Eastern, died in Santa Barbara, California, on July 6, 1924. Mr. Long, who was born in California in 1864 was a well known construction engineer, serving for many years as an assistant to Chief Engineer William Hood of the Southern Pacific Company.